ALTAMONT WATER TREATMENT PLANT
DRAFT ENVIRONMENTAL IMPACT REPORT

Prepared For:

Zone 7 of Alameda County
Flood Control and
Water Conservation District

Prepared By:

EIP Associates
601 Montgomery Street, Suite 500
San Francisco, California 94111

January 22, 2001

ALTAMONT WATER TREATMENT PLANT
DRAFT ENVIRONMENTAL IMPACT REPORT

Prepared For:

Zone 7 of Alameda County
Flood Control and
Water Conservation District

Prepared By:

EIP Associates
601 Montgomery Street, Suite 500
San Francisco, California 94111

January 22, 2001

Zone 7 Contact: Jack Fong, P.E. Civil Engineer
(925) 484-2600, Ext. 245 (voice)
(925) 462-3914 (fax)
JFong@zone7water.com

EIP Contact: George Burwasser, Project Manager
(415) 362-1500, Ext. 224 (voice)
(415) 362-1954 (fax)
gburwasser@eipassociates.com

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS USED IN THE ALTAMONT WATER TREATMENT PLANT EIR

APR	Altamont Pass Road
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEG	Certified Engineering Geologist
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CMA	Congestion Management Agency
CMP	Congestion Management Programs
CNDDB	California Natural Diversity Data Base
DHS	Department of Health Services
DOT	U.S. Department of Transportation
DSRSD	Dublin San Ramon Service District
EBRPD	East Bay Regional Parks District
ECAP	East County Area Plan
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
GPA	General Plan Amendment
HCP	Habitat Conservation Plan
LARPD	Livermore Area Recreation and Park District
LAVWMA	Livermore-Amador Valley Water Management Agency
MCL	Maximum Contaminant Level
NLP	North Livermore Pipeline
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NWPs	Nationwide Permits
RGE	Registered Geotechnical Engineer
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Board
SBA	South Bay Aqueduct
SFWD	San Francisco Water Department
SHPO	State Office of Historic Preservation
SIP	State Implementation Plan

SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminants
TMDL	Total Maximum Daily Load
TVAP	Tri-Valley Transportation Plan/Action Plan for Routes of Regional Significance
TVTC	Tri-Valley Transportation Council
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WTP	Water Treatment Plant

SUMMARY

PROJECT OBJECTIVE

As one of the ten active zones of the Alameda County Water Conservation and Flood Control District, Zone 7 has served the Alameda County portion of the Livermore-Amador Valley since 1957. The studies embodied in Zone 7's Water Supply Planning Study[1] identified the potential need for a new water treatment plant in the Altamont Pass area, north of Interstate Highway 580 (I-580) and west of the South Bay Aqueduct. As one component of Zone 7's Water Supply Planning Program for the next five years, a new water treatment plant in this area was recommended to move Zone 7 toward a three-plant configuration that would provide treated water for municipal and industrial needs through Fiscal Year 2020. The current *Water Supply System Five-Year Capital Improvement Program*[2] identifies a water treatment plant in the Altamont Pass area as one of the projects Zone 7 needs to complete by 2006 to maintain adequate treated water supply for its customers.

PROJECT SITE SCREENING

Ten sites in the Altamont Pass area were examined in the *Treated Water Facilities Master Plan*[3] as possible locations for the new water treatment plant. The sites were screened for engineering and operational concerns, geotechnical concerns, and environmental concerns. Three of the ten possible sites passed the site screening process, and are located in Alameda County, northeast of the City of Livermore.

PROPOSED NEW SITE AND FACILITIES

The main focuses of the EIR prepared for the proposed Altamont Water Treatment Plant project are (1) the acquisition of a site on which to build the plant, and (2) the construction of a water treatment facility, up to 24-million-gallons-per-day (MGD) by 2006, with the potential to increase to a maximum of 42 MGD in 2016. The capacity of the water treatment plant (up to 24 MGD) could be expanded, depending on the future demand for treated water. The proposed conveyance facilities would be designed, however, to accommodate the maximum potential water treatment plant capacity, currently estimated at 42 MGD. The construction of conveyance pipelines to and from the water treatment plant is necessary to the operation of the facility. Because the site of the plant will be selected partially on the basis of the Environmental Impact Report (EIR) to be prepared for this project, some examination of the probable pipeline routes associated with each site will be included in the EIR. However, a

complete examination of the pipeline routes to and from the selected site will be the subject of subsequent project-level environmental documents.

The new water treatment plant would consist of the following facilities:

- an intake structure located on the South Bay Aqueduct and a nearby pump station;
- raw water conveyance pipeline to transport water from the South Bay Aqueduct to the treatment facilities;
- a surface water treatment plant capable of producing, initially, up to 24 MGD of drinking water, with an increase to a maximum of 42 MGD by 2020, and ancillary facilities such as an operations and control building, chemical storage and feed systems, solids handling facilities that could include sludge drying beds and washwater recovery facilities, parking areas, pumping systems, process water storage tanks, and an access road to the site;
- treated water storage reservoirs holding up to 10 million gallons of water; and
- treated water conveyance pipelines to transport finished water from the new water treatment plant to existing or future Zone 7 transmission pipelines.

The new water treatment plant would be designed to meet both current and reasonably anticipated future drinking water regulations. To this end, two treatment process options will be identified here, but will remain an engineering decision during preliminary design: conventional treatment with ozone and an emerging technology treatment train that will include membrane filtration (see Appendix B, Treatment Alternatives).

IMPACTS AND MITIGATION MEASURES

Table S-1, which forms most of this section, presents a summary of the impacts of the proposed Altamont WTP, the identified mitigation measures, and each impact's level of significance after mitigation. The environmental impacts are identified and classified as "Significant Adverse," "Potentially Significant Adverse," or "Insignificant." According to CEQA Guidelines Section 15382, a significant impact is "…a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project…" For each category of physical conditions evaluated in the EIR, standards of significance have been developed.

CEQA Guidelines Section 15126.4 states that an EIR "…shall describe feasible mitigation measures which could minimize significant adverse impacts…" In this EIR, mitigation measures are identified (where feasible) for all of the impacts labeled "Significant" or "Potentially Significant." Each identified impact is numbered; mitigation measures identified

for that impact are numbered correspondingly. For example, Mitigation Measure 1.1 represents the first measure identified to address Impact 1.

In Section 3, Environmental Setting, Impacts and Mitigation Measures, the impacts for each environmental topic are indicated with one of the above codes following the identification of impact. The mitigation measure(s) for that environmental impact is followed with four lines of information as shown in the following example.

Mitigates:	Impact 1.1 (I)
Implementation:	Construction Phase
Responsibility:	Contractor
Monitoring:	Lead Agency

The interpretation of this example is: 1) the measure mitigates impact number 1.1 to a level of insignificance (I); 2) the mitigation measure should be implemented during the project construction phase; 3) the contractor would be responsible for implementing the mitigation measure, and 4) the Lead Agency would monitor the implementation and success of the mitigation measure, as defined further in this EIR.

The significant effects of the proposed project are identified in Section 3 of this EIR. The proposed project would have potentially significant or significant impacts that would be reduced to less than significant with mitigation measures in the areas of land use, cultural resources, traffic and circulation, biological resources, soils, geology and seismicity, hydrology, water quality, hazardous materials, air quality and noise. Impacts would remain potentially significant even after mitigation in the areas of visual quality and related visual quality impacts on recreational resources.

ALTERNATIVES

CEQA requires that an EIR "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6(d)). If a project alternative would substantially lessen the significant environmental effects of a proposed project, the decision maker should not approve the proposed project unless it determines that specific technological, economic, social, or other considerations make the project alternative infeasible (CEQA Guidelines Section 15091(a)(3)). The EIR must also identify alternatives that were considered by the lead agency but were rejected as infeasible

during the scoping process and should briefly explain the reasons underlying the lead agency's determination (CEQA Guidelines Section 15126.6(c)). One of the alternatives analyzed must be the "no project" alternative. The "no project" analysis must discuss the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved and development continued to occur in accordance with existing plans and consistent with available infrastructure and community services (CEQA Guidelines, Section 15126.6(e)).

DESCRIPTION OF ALTERNATIVES

Section 6 of this EIR describes the initial screening process by which ten potential sites were evaluated and narrowed to the three sites selected for the project level analysis presented in this document. After circulation of the Notice of Preparation listing these three sites, one was eliminated from further consideration after it was learned that the parcel of land encompassing Altamont Pass Road Site #1 had been purchased and was in escrow. Another potential site, Dyer Road Site #5, was added to the analysis. Section 6 also discusses the No Project Alternative as required by CEQA.

SUMMARY TABLE OF IMPACTS AND MITIGATION MEASURES

Table S-1, Summary of Impacts and Mitigation Measures, is presented on the following pages. Impacts are organized according to the major topics discussed in Section 3, Environmental Setting, Impacts and Mitigation Measures.

NOTES - Summary

1. Water Transfer Associates, *Water Supply Planning Study,* February 1999, prepared for Zone 7 of Alameda County Flood Control and Water Conservation District.

2. Zone 7 of Alameda County Flood Control and Water Conservation District, *Fiscal year 2001/02 Water Supply System Five-Year Capital Improvement Program,* June 2000.

3. Camp Dresser McKee, *Treated Water Facilities Master Plan-Final Report,* February 2000, prepared for Zone 7 of Alameda County Flood Control and Water Conservation District.

4. The most up-to-date version of the Manual should be used (Camp, Dresser and McKee, Inc., Larry Walker Associates, Uribe and Associates, and Resource Planning Associates, California Storm Water Best Management Practice Handbook -- Industrial/Commercial, California State Water Resources Control Board, Sacramento, CA, March 1993). The California Storm Water Quality Task Force is preparing corrections for this manual and anticipates revising the manual.

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
3.1 SOCIAL/CULTURAL ISSUES		
3.1. Land Use 1		
Impact 3.1.1-1 (PS) Development of the Altamont WTP on Laughlin Road Site #3 may encounter land use restrictions because the western portion of the site is located in an Alquist-Priolo Earthquake Fault Zone.	3.1.1-1 Configure the Altamont WTP on this site specifically to avoid locating facilities within the Alquist-Priolo Earthquake Fault Zone. Show the boundary of the fault zone on construction drawings and specifications. Follow required building design guidelines for seismic safety (see Impacts and Mitigation Measures 3.2.2-1 and 3.2.2-2 in Section 3.2.2, Soils, Geology, and Seismicity).	(I)
Impact 3.1.1-2 (PS) Development of the Altamont WTP on the Dyer Road Site #1 may encounter restrictions because of wetlands/vernal ponds on the site, and because the site has been previously identified as mitigation acreage for San Joaquin kit fox in a prior certified EIR regarding landfill expansion.	3.1.1-2 Identify and dedicate a similar site acceptable to the U.S. Fish and Wildlife Service to replace the use of Dyer Road Site #1 as a mitigation site for the landfill project. Alternatively, Zone 7 would contribute in lieu fees to the U.S. Fish and Wildlife Service Mitigation Bank for development projects in the Livermore-Amador Valley.	(I)
Impact 3.1.1-3 (PS) Development of the Altamont WTP on Laughlin Road Site #3 would not conflict with existing nearby use at the BFI landfill, but may conflict with nearby future planned residential development in the North Livermore area.	3.1.1-3 Grading should be sensitive to the visual characteristics of the area to complement or enhance the natural contours of the surrounding landscape and to preserve or enhance existing vegetation as much as possible. Vegetation may also be added to screen or soften the effects of grading. Features such as drainage improvementson cut and fill slopes should be designed to be as invisible as possible. Grading for access roads to proposed structures (necessary for Laughlin Road Site #3) is necessary because of steep slopes, and is also necessary for grading of the chosen site for the structure itself.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

Impact 3.1.1-4 (I) Development of the Altamont WTP on any one of the three sites would be compatible with existing large parcel agriculture land use designation and Williamson Act contracts.	3.1.1-4 None required.	(I)

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
3.1.2 Visual Quality		
3.1.2-1 (PS) Placement of the proposed Altamont WTP at any of the proposed sites would create visual impacts on the long-range viewshed of Brushy Peak Regional Preserve.	3.1.2-1 Preserve existing vegetation to minimize the visual impact of new development. Add new landscaping to enhance the appearance of the new facilities or to screen negative visual elements. Choose landscaping that blends with the surrounding natural or historic vegetation. Although fast-growing plants often are selected for screening because they will camouflage a view in a short period of time, slower-growing native vegetation is preferred because it will be more compatible with the surrounding area over the long term. Selection of plant materials also will need to be considered in terms of fire hazards, biological resources and erosion control. Design new Altamont WTP facilities to blend with the rural nature of the surrounding area to the full extent possible. The buildings could incorporate architectural features such as compatible colors or surface textures to resemble barns or other similar rural structures in the area. Grading of the water treatment plant site should be sensitive to the visual characteristics of the area to complement or enhance the natural contours of the surrounding landscape and to preserve existing vegetation as much as possible. Vegetation or berming may be added to screen or soften the effects of grading. Features such as drainage improvements on cut and fill slopes should be designed to be as invisible as possible. Grading for the access road to Laughlin Road Site #3 and to proposed structures within each site also should be sensitive to the visual characteristics and natural contours of the surrounding landscape.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.1.2-2 (PS) Placement of the Altamont WTP on Laughlin Road Site #3 would place the facility within ridgeline views of the Altamont Hills.	3.1.2-2 Implement Mitigation Measure 3.1.2-1.	(I)
3.1.3 Recreational Resources		
Impact 3.1.3-1 (PS) Placement of the proposed Altamont WTP at any of the proposed sites would create visual impacts on the long-range viewshed of Brushy Peak Regional Preserve.	3.1.3-1 Implement Mitigation Measure 3.1.2-1 in Section 3.1.2, Visual Quality, and continue discussions with the East Bay Regional Park District, the Livermore Area Recreation and Parks District, the City of Livermore, and Alameda County to develop and implement appropriate measures to make the Altamont WTP more compatible with its surroundings.	(I)
3.1.4 Cultural Resources		
Impact 3.1.4-1 (PS) The proposed and future conveyance/transmission alignment crosses environments likely to contain archaeological deposits, specifically along Laughlin Road. There is a high potential for Native American sites at Laughlin Road Site #3 and Dyer Road Site #5.	3.1.4-1 Prior to commencement of earth-moving activities, Zone 7 would retain a qualified archaeologist (i.e., listed on the Registry of Professional Archaeologists) to conduct a Phase I survey of the unsurveyed portion of the selected site to determine the presence of cultural resources on or near the ground surface. A report of the investigation would be submitted to the Northwest Information Center at Sonoma State University and to Zone 7 within two weeks of its completion. If the Phase I survey indicates the presence of cultural resources, Zone 7 would retain a qualified archaeologist to conduct a Phase II subsurface testing program for the cultural resources discovered on the project site. This may be accomplished through the mechanical excavation of a number of auger holes as well as 1x1-meter, hand-excavated units for stratigraphic control. The Phase II report would include a discussion of significance (depth, nature, condition, and extent of resources), final mitigation recommendations, and cost estimates, and would be	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Cultural Resources (continued)	submitted to Zone 7 for review and approval. The report would be submitted to Zone 7, the State Office of Historic Preservation (SHPO), and the Northwest Information Center at Sonoma State University, within two weeks of its completion. If Phase II subsurface testing is necessary, Zone 7 would retain a qualified archaeologist to prepare a Cultural Resources Management Plan based on Phase II subsurface test results. The plan would outline options for cultural resource avoidance and/or protection. A full data recovery program would be designed, if avoidance were feasible through design. Possible recovery plans include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary. Preparation of the cultural resources management plan would be coordinated with SHPO, the Native American Heritage Commission, and Native American and historic preservation groups. The plan would be reviewed and approved by Zone 7 and by SHPO. Zone 7 would retain a qualified archaeologist to perform spot-checks (at a frequency predetermined by the archaeologist and Zone 7) of the selected project site during ground-disturbing activities. The archaeologist would have the authority to halt construction activities in the affected area for a period of time necessary to conduct an appropriate assessment of any suspected archaeological resources that may be uncovered. If any archaeological deposits or features are encountered in the absence of the archaeologist, work would cease in the affected area, and the archaeologist would be consulted. If significant archaeological resources are found and cannot practicably be avoided, scientific data recovery, analysis, and documentation would be conducted, at the discretion of the archaeologist. A report of any studies conducted would be prepared and submitted to Zone 7, SHPO, and the NWIC at Sonoma State University within two weeks of the study's completion. If burials are discovered, no further excavation or disturbance of the site or reasonably suspect nearby area would occur until:	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	The County Coroner is contacted to determine that no investigation of the cause of death is required. The Coroner determines whether the remains are Native American, in which case the Native American Heritage Commission would be notified within 24 hours, in order to identify a Most Likely Descendant, and the requirements outlined in CEQA Guidelines Sections 15064.5 (e)(1)(B) and 15064.5(e)(2), and Public Resources Code Section 5097.98, have been satisfied.	
Cultural Resources (continued)		
Impact 3.1.4-2 (PS) Although there are no recorded historic structures on any of the possible water treatment plant sites, or in any of the proposed or future alignments, there are buildings and structures near the sites and alignments that are at least 45 years old which may be considered of historical value by the Office of Historic Preservation and could be damaged by vibration during the construction phase of the project.	3.1.4-2 Zone 7 would route heavily loaded trucks away from identified historic resources and operate earth moving equipment as far from fragile sites as possible.	(I)
3.1.5 Traffic and Circulation		
Impact 3.1.5-1 (PS) Construction of the proposed Altamont WTP pipelines would cause temporary construction-phase congestion impacts on local roads for a period of approximately six months, and may cause permanent damage to elements of the transportation system such as road pavement.	3.1.5-1 Zone 7 would provide adequate off-road parking at construction sites for all construction-related vehicles throughout the construction period to relieve potential congestion of local roads. If adequate parking cannot be provided on the construction sites, a satellite parking area should be designated, and a shuttle bus should be operated to transfer construction workers to the job sites.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Traffic and Circulation (continued)		
Impact 3.1.5-2 (PS) Construction of the proposed Altamont WTP would cause temporary construction-phase congestion impacts on local roads for a period of approximately two years.	3.1.5-2 Zone 7 should provide adequate off-road parking at construction sites for all construction-related vehicles throughout the construction period to relieve potential congestion of local roads. If adequate parking cannot be provided on the construction sites, a satellite parking area should be designated, and a shuttle bus should be operated to transfer construction workers to the job sites.	(I)
Impact 3.1.5-3 (I) Operational phase truck traffic could adversely impact local traffic and circulation in the vicinity of the selected Altamont WTP site.	3.1.5-3 None required.	(I)
3.2 PHYSICAL/BIOLOGICAL ISSUES		
3.2.1 Biological Resources		
Impact 3.2.1-1 (S) Construction of the Altamont WTP and associated infrastructure on any of the possible sites would remove grassland foraging habitat of the State and federally Endangered San Joaquin kit fox.	3.2.1-1 Loss of foraging habitat would be replaced by preservation of similar grassland habitat in the vicinity. The USFWS probably would require replacement of lost San Joaquin kit fox foraging habitat at a ratio of at least 3:1, or to be funded through in lieu fees, paid by Zone 7 to the USFWS to purchase land for foraging habitat.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.2.1-2 (PS) Site grading and construction on Dyer Road Site #1 could result in the direct loss of California red-legged frogs, their eggs, or larvae through filling of the vernal ponds, or indirect loss resulting from degradation of their aquatic breeding habitat and upland estivation habitat.	3.2.1-2 Project design should avoid direct impacts to the vernal ponds on Dyer Road Site #1, and should not site any part of the water treatment plant or associated infrastructure within 300 feet of a pond unless siting the facility closer to vernal ponds is approved by the USFWS and the CDFG. If Dyer Road Site #1 is chosen as the Altamont WTP site, further discussion between Zone 7 and the USFWS and CDFG would determine whether any portions of the facility could be sited within 300 feet of a vernal pond. Project	(I)
Biological Resources (Continued)	design should avoid changes in the hydrologic regime, and should avoid siltation or pollution of the ponds during construction or operation of the facility. Where loss of wetlands cannot be avoided completely, Zone 7 should provide mitigation such as the creation of new wetlands to ensure there is no net loss of wetland acreage or habitat value. All modifications to wetlands (including the filling of seasonal wetlands) is required to be coordinated with the USFWS, CDFG, the Corps, and the Regional Water Quality Control Board by State and federal law to ensure that all mitigation requirements and design modifications are incorporated into the project. The wetland replacement ratio would depend upon the habitat value of the vernal ponds. If surveys find that fairy shrimp are present in the ponds, mitigation for loss of fairy shrimp habitat will be a combination of preserving occupied and potentially occupied habitat at a 2:1 ratio and creating additional habitat at a 1:1 ratio, meeting CDFG's requirements of an approved mitigation "bank." If surveys find that fairy shrimp are not present in the ponds, a 1:1 replacement ratio would be required at a minimum. The amount of seasonal wetland actually created would be determined in consultation with the CDFG Surveys to establish presence or absence of the California red-legged frog conducted according to the February 18, 1997 *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* would be required by the USFWS. If California red-legged frog and its critical habitat elements are found to be absent, no further mitigation would be required. An Endangered Species Action Section 7 consultation would be required for impacts to California red-legged frog and its critical habitat elements, if found, and mitigation would be required. A California red-legged frog management	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	plan and monitoring program would be required as part of the mitigation, if the species is present. Accordingly, California red-legged frog management practices contained in Section 2.0 of the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook* would be implemented on the selected project site.	
Impact 3.2.1-3 (PS) Implementation of the Altamont Water Treatment Plant project could result in direct or indirect impacts to	3.2.1-3 Project design should avoid direct impacts to the vernal ponds on Dyer Road Site #1, should not site any portion of the facility or associated infrastructure within 300 feet of a pond without consultation with the USFWS and the CDFG, should avoid changes in the	(I)
Biological Resources (Continued)		
California tiger salamanders, their eggs, larvae, and suitable aquatic and upland habitat, should the species occur on the selected site.	hydrologic regime, and should avoid siltation or pollution of the ponds during construction or operation of the facility. One year of surveys for adult California tiger salamander (nocturnal surveys) and a second year of larval surveys must be completed according to CDFG protocol before it can be concluded that the California tiger salamander is not present on the selected site. If an absence finding is determined and accepted by the USFWS, no further mitigation for California tiger salamander would be required. If the species is found on the selected site during the surveys, the mitigation outlined below should be implemented to offset impacts to a level that would be considered insignificant pursuant to the California Environmental Quality Act. Following CDFG's requirements, all impacts to California tiger salamander estivation and breeding habitat on the selected site should be replaced or preserved at a 1:1 ratio. Specifically, for each acre of estivation habitat impacted, 1 acre of extant estivation habitat would be preserved. For each acre of breeding habitat impacted, 1 acre of extant breeding habitat would be preserved and/or created in extant California tiger salamander estivation habitat. All preservation would be in perpetuity via a conservation easement. Barriers to guide salamanders searching for estivation habitat away from development should be constructed under direction of a qualified biologist in	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	accordance with the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook*.	
Impact 3.2.1-4 (PS) The Altamont Water Treatment Plant project could result in direct or indirect impacts to burrowing owls (Federal Species of Concern, California Species of Concern) which are known to occur in the project region (but not observed on any of the proposed project sites), if they occupy the project sites prior to construction. **Biological Resources (Continued)**	3.2.1-4 Burrowing owl management practices applicable to the selected site are contained in Section 4.0 of the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook*. Zone 7 would be responsible for conducting Phase II burrow surveys by qualified biologists in accordance with methods detailed in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium and the CDFG *Staff Report on Burrowing Owls*. The surveys would be conducted within the project impact area and a 150-foot-wide buffer no more than 30 days prior to ground disturbance. If suitable burrows were found, Zone 7 would be responsible for conducting Phase III burrowing owl surveys, census, and mapping using qualified biologists, in accordance with the survey protocol. If burrowing owls are not found in the impact area, or buffer zone during those surveys, there would be no impact and no further action would be required. If owls were found to occupy the site or buffer zone, the following measures would be required in consultation with CDFG. Implementation of these measures would reduce impacts to burrowing owls to an insignificant level. Occupied burrows would not be disturbed during the nesting season (from February 1 through August 31) unless the CDFG verifies that the owls have not yet begun egg-laying and incubation or that the juveniles are foraging independently and are capable of independent survival. A minimum of 6.5 acres of foraging habitat contiguous with burrows occupied within the last 3 years would be maintained under a conservation easement per pair of burrowing owls (or unpaired resident single bird) found on the site or within the buffer zone.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	In addition to maintaining foraging habitat, occupied burrows in the impact area or buffer should be avoided by not allowing disturbance within 160 feet during the non-breeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31). If it is not feasible to avoid the burrows and they must be destroyed for project development, disturbance should occur only outside of the nesting season and after owls have been relocated (preferably passively) to an adjacent or nearby burrow enhancement area in close coordination with the CDFG. In burrow enhancement areas, natural burrows should be enhanced by enlarging or clearing of debris, or artificial burrows shall be created in suitable burrowing owl habitat, both at a ratio of 1:1. A 5-year monitoring program should be implemented to document successful attainment of the performance criteria.	
Biological Resources (Continued)	Performance criteria for success should include measures to ensure that no owls are killed or injured, no nests nor eggs are destroyed, taken, nor possessed, nor that any disturbance occurs which results in nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young). Any of these circumstances are defined as illegal "take" under both federal and State migratory bird treaty laws.	
Impact 3.2.1-5 (PS) The Altamont Water Treatment Plant project could result in the direct or indirect loss of breeding habitat for sensitive bird species, including the white-tailed kite, California horned lark, and loggerhead shrike.	3.2.1-5 If work on the selected site would occur during the months of April through July, Zone 7 would conduct a preconstruction survey for nesting California horned larks in the 30-day period prior to construction. If nesting California horned larks were found on the project site, a 500-foot buffer would be established around the nest site(s), and no grading or construction activity would occur within the buffer zone until it is determined by a qualified ornithologist that the young have fledged, typically by July.	(I)
Impact 3.2.1-6 (PS)	3.2.1-6	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Site preparation, construction, and operation of the proposed project could have direct and indirect effects on vernal pool crustaceans, including the longhorn fairy shrimp, vernal pool fairy shrimp, California linderiella, and the vernal pool tadpole shrimp, should any of these species occur in the vernal ponds on Dyer Road Site #1 or seasonal roadside ditches within the transmission pipelines corridors.	Project design should avoid filling of vernal ponds or ditches. A 300-foot buffer from the ordinary high water marks of the ponds should be observed. Grading for buildings and roads should avoid alteration to the hydrologic regime. Best Management Practices during construction would avoid contamination of the ponds with silt or toxins. Preventive measures should be practiced during operation of the water treatment plant to avoid potential discharge of contaminants into the ponds. Monitoring of the ponds should be conducted during construction and for the first 5 years of operation to ensure that no silt or toxins are present.	(I)
Impact 3.2.1-7 (PS) Construction of the proposed project could have direct and indirect effects upon the hydrology and aquatic habitat quality of the vernal ponds on Dyer Road Site #1, two drainages on Dyer Road Site #5, and roadside ditches within the transmission pipelines corridors.	3.2.1-7 Siting of the proposed facility should avoid fill of wetlands on Dyer Road Sites #1 and the seasonal drainage on Dyer Road Site #5 and the potential fill of wetlands within the transmission pipelines corridors. Implement Mitigation Measures 3.2.3-1 (Hydrology) and 3.2.4-1 (Water Quality) together with the development of a monitoring program (Mitigation Measure 3.2.1-6).	(I)
Biological Resources (Continued)		
Impact 3.2.1-8 (I) Noise and human activity resulting from construction or operation of the Altamont Water Treatment Plant project would not be expected to have long-term adverse effects on wildlife species occurring on the selected site.	3.2.1-8 None required.	(I)
Impact 3.2.1-9 (PS) Grading activities during project construction and the establishment of project landscaping could result in the introduction of undesirable invasive non-native plant species to the project site and adjacent areas.	3.2.1-9 The potential establishment and expansion of exotic plant species into newly-graded areas should be minimized by seeding disturbed areas with a native grassland mix applied in conjunction with mulch and tackifier as soon as grading activities are completed. Landscaping on the site should contain as much native California species of	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	trees, shrubs, and groundcovers appropriate to Alameda County and the project vicinity as possible. This would provide foraging opportunities for native wildlife. Appropriate native species include trees such as coast live oaks; shrubs such as blue elderberry, toyon, coffeeberry, and coyote brush; and native grasses, such as purple and foothill needlegrass.	
3.2. Soils, Geology and Seismicity 2		
Impact 3.2.2-1 (PS) Laughlin Road Site #3 could be subject to the damaging effects of surface rupture along the Greenville fault zone.	3.2.1-1 All structures are required to be built to seismic standards of the most recent edition of the CBC, as mentioned in the *State Polices and Regulations* section of this EIR. As part of the risk reduction measures, all construction should incorporate gas cutoff valves, anchoring of heavy equipment to prevent movement, and other appropriate groundshaking risk reduction techniques deemed feasible during the design review phase of the project.	(I)
Soils, Geology and Seismicity (continued)		
Impact 3.2.2-2 (PS) The entire project area will be subject to potentially damaging seismically induced groundshaking during major earthquakes on nearby active faults.	3.2.1-2 Prior to final plan approval, all development proposed within areas of older alluvial deposits would be subject to site-specific geologic and geotechnical investigations that address the potential for groundshaking, liquefaction and densification of subsurface soils. Investigations must be performed under direction of a Registered Geotechnical Engineer (RGE) and/or a Certified Engineering Geologist (CEG) registered in the State of California.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	Development should be approved only after a demonstration that liquefaction/ densification are unlikely to occur, or that appropriate structural measures have been incorporated into the project design to resist them. Prior to construction, geotechnical investigations would be performed for all areas proposed to be paved (foundations, access roads, etc.) to identify potential areas of expansive soils. If such soils are found, the report would present site-specific recommendations for design and construction that would limit the effect of expansive soils. Such recommendations may include: increased thickness of road base; greater foundation widths or depths; pre-saturation of fill soils and placement above optimum moisture content; placing non-expansive imported soil in the upper portion of building pads; spread footings, pad foundations, or footing wall foundations; or a combination of these and other appropriate methods.	
Impact 3.2.2-3 (PS) Grading, excavation and construction activities have the potential to increase erosion of soil from the site, and subsequent deposition of soil particles in area creeks, the wetland areas on Dyer Road Site #1, and larger water bodies downstream of the sites.	3.2.2-3 Implement Mitigation Measure 3.2.3-1 in Section 3.2.3, Hydrology.	(I)
3.2. Hydrology **3**		

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.2.3-1 (PS) Construction activities for proposed facilities and associated infrastructure could result in short- or long-term increases in erosion.	3.2.3-1 Because it is not feasible to limit the project construction schedule to the dry season (April through September), Zone 7 will prepare a Storm Water Pollution Prevention Plan (SWPPP) that utilizes on-site measures to reduce erosion during the construction period. The SWPPP is a document consisting of a narrative and a separate sheet within the construction document set, usually in the Civil Engineering or Landscape series, that outlines both a plan to control stormwater pollution during construction (temporary controls) and after construction is completed (permanent elements). For example, detention/retention basins can be designed to function as sediment traps/basins during the construction phase. Following completion, sediment is removed and the outlet structures are modified to function as stormwater detention/retention basins. Submit the SWPPP's soil erosion and sedimentation control plan to the County prior to grading. The erosion and sedimentation control plan should be designed by an erosion control professional, or landscape architect or civil engineer specializing in erosion control. This plan would include, but is not limited to, the following erosion control methods: The erosion and sedimentation control plan would be reviewed, implemented and inspected as part of the approval process for the final grading plans for the project. Concepts similar to those formulated by the Alameda Countywide Clean Water Program and the Association of Bay Area Governments would be used, based on the specific erosion and sediment transport control needs of each area in which grading, excavation, and construction is to occur. These concepts include applications that could be implemented on all sites, and some that would be appropriate only for specific sites. The possible methods are not necessarily limited to the following items:	(I)
Hydrology (continued)	Confine grading and activities related to grading (demolition,	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	excavation, construction, preparation and use of equipment and material storage areas [staging areas], preparation of access roads) to the dry season, whenever possible. Locate staging areas outside major streams and drainage-ways. Keep the lengths and gradients of constructed slopes (cut or fill) as low as possible. Discharge grading and construction runoff into small drainages at frequent intervals to avoid build-up of large, potentially erosive flows. Prevent runoff from flowing over unprotected slopes. Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction of the project. Keep runoff away from disturbed areas during grading and related activities. Stabilize disturbed areas as quickly as possible, either by vegetative or mechanical methods. Direct runoff over vegetated areas before discharge into public storm drainage systems, whenever possible. Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or siltation fences. Use interceptor ditches, drainage swales, or temporary detention basins to prevent storm runoff from transporting sediment into drainage-ways and to prevent sediment-laden runoff from leaving the disturbed area. Install silt fences to prevent sedimentation in adjacent areas and down gradients into drainages. Require the contractor to remove and dispose of all project-related sedimentation in off-site retention ponds. Use landscaping and grading methods that lower the potential for down-stream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower storm-water conveyance velocities are examples of effective methods.	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Hydrology (Continued)	Control landscaping activities carefully with regard to the application of fertilizers, herbicides, pesticides or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team. The erosion control professional would be on the site during the installation of the erosion and sediment transport control facilities, to supervise the implementation of the designs. The maintenance of the facilities during the grading and construction period also would be monitored by the erosion control professional. The erosion control professional should prepare an "as-built" erosion and sediment control facility map, to be filed with Zone 7, showing details of the permanent elements of the plan and providing an operating and maintenance schedule throughout the operational period of the project. The proposed water supply and transmission pipeline corridor to be constructed in conjunction with the plant facilities would be placed under existing roadways. During construction of the pipeline, temporary erosion control measures would be installed to alleviate potential construction-related impacts. During construction, all major wetland and riparian habitats adjacent to the pipeline alignment should be protected and avoided.	
Impact 3.2.3-2 (PS) Construction of water treatment plant facilities and paved access roads and parking areas would result in an increase in impervious areas and higher levels of surface runoff, potentially increasing erosion and flooding in downstream drainage-ways.	3.2.3-2 Design a stormwater management system to offset the effects of impervious surfaces at the project site. Post-construction runoff leaving the site should not exceed existing (pre-construction) peak flows for the 100-year storm. The design should be reviewed by Zone 7 Flood Control Engineering Section to ensure appropriate management of stormwater flows in the surrounding vicinity. Storm drainage systems designed to control site runoff to levels equal to or less than existing conditions are recommended by the Alameda Public Works Agency to reduce the potential for cumulative impacts. Because the anticipated drainage improvements have not yet been built, it is recommended that the overall project design respond to the existing flooding problems and mitigate for the minor	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	increase in runoff that has been projected.	
Hydrology (Continued)	Ideally, the overall mitigation strategy should include a site-specific design focused on the development and inclusion of explicit elements to reduce the amount of impervious surfaces on a project site, and to allow improved management of stormwater flows within the surrounding vicinity so that runoff leaving the site would not exceed existing levels. Traditional designs for managing runoff emphasize maintaining the efficiency of conduits (i.e., pipes and channels) that transport stormwater to downstream locations where the water is released and/or stored. On-site strategies such as permeable surfaces, infiltration trenches or detention basins that reduce runoff at the project site are important components of an overall stormwater management system. Small collection and infiltration strategies, located at the point where runoff initially meets the ground, repeated consistently over a project area, will yield the greatest runoff control for the least cost. The procedures and practices listed below have been adopted by the Alameda Countywide Stormwater Management Plan. Incorporate measures into overall drainage design that maximize infiltration/permeability and trap sediment and pollutants in stormwater runoff. To the extent possible, locate impervious surfaces to avoid identified natural recharge areas. Wherever feasible, use the Bay Area Stormwater Management Agencies Design Guidance Manual to modify roadway, landscaping and channel improvement projects to incorporate recommended design elements such as: sediment traps, gravel strips and/or trenches, concave planting areas, permeable substrate, and infiltration basins at the end of downspouts.	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	The construction of near-source detention facilities (as described in the Alameda County Stormwater Management Plan) is recommended by the EIR consultant as an effective flood control strategy. Proper implementation would necessitate construction on or near the project site to ensure that peak runoff from the site under developed conditions would not exceed that of runoff under pre-development (existing) conditions. If adequate detention facilities were provided for collection and detention of increased runoff, and such runoff were detained for a sufficient period of time to enable the peak flood flow wave in Arroyo Las Positas to pass before such runoff was allowed to enter into the Arroyo, downstream peak flood flows would not increase. Stormwater infiltration trenches or basins could be included in the project design as an integrated measure to reduce flooding impacts and to improve downstream water quality. The locations of improvements could coincide with the drainage conduits and flow paths identified on the selected site or at other locations deemed suitable by Zone 7.	
3.2. Water Quality **4**		
Impact 3.2.4-1 (PS) Increased stormwater runoff from additional impervious surfaces at the proposed Altamont WTP, and releases to storm drains from spills or other accidents, could lower the quality of runoff and increase pollutant levels in local streams.	3.2.4-1a Zone 7 would prepare a SWPPP covering all activities at the proposed water treatment plant in accordance with the industrial discharger guidelines of the Alameda Countywide Clean Water Program and the *California Storm Water Best Management Practice Handbook—Industrial/Commercial* (including the Bay Area preamble).[4] Prior to initiating water treatment activities at the Altamont WTP, Zone 7 would submit the SWPPP to the San Francisco Bay RWQCB for review and approval. If written approval were not received within 90 days of the initiation of operations at the treatment plant, Zone 7 would contract with a Registered Environmental Assessor or a Professional Engineer with expertise in stormwater pollution prevention planning to conduct a peer review of the plan and ensure that the plan would reduce pollutant discharges to the maximum extent practicable.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	3.2.4-1b Implement Mitigation Measure 3.2.3-2 in Section 3.2.3, Hydrology.	(I)
3.2. Hazardous Materials and Public Safety 5		
Impact 3.2.5-1 (PS) The proposed Altamont WTP project would involve storage and handling of hazardous materials such as liquid ammonia, sodium hydroxide, and sulfuric acid,	3.2.5-1 The design of the chemical storage and handling systems at the Altamont WTP would incorporate the types of features listed below. The designs would not be limited to these	(I)
Hazardous Materials and Public Safety (Continued)		
thereby resulting in new risks of human and environmental exposure.	examples but could incorporate similar features, which would accommodate safe storage, and handling of hazardous materials and would reduce the potential for accidental spills. Design chemical diffusers to provide uniform chemical distribution into process flow without clogging. Use construction materials that are compatible with the chemicals to be fed. Use chemical piping that is double walled or contained within a trench designed to prevent leaks if a pipe break occurs. Store chemicals in an independent storage area that is easily accessible by chemical delivery trucks. Provide a secondary containment wall with a height sufficient to contain the volume of the largest storage tank in the event of a leak. Use chemical storage tanks that are specially designed with concrete containment pads. Equip storage areas with monitoring devices that conform to OSHA and Uniform Fire Code requirements for the detection of chemical concentrations in ambient air in case leaks occur. Provide a chemical washdown holding tank to divert chemical spills or rainfall run-off from chemical delivery and storage areas.	

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.2.5-2 (PS) The proposed Altamont WTP project would result in transportation of hazardous materials to the site, which could create new risks of human and environmental exposure.	3.2.5-2 The design of the on-site access and service roads to the Altamont WTP would incorporate the types of features listed below to minimize transportation hazards. The designs would not be limited to these features, but could incorporate similar features which would reduce the probability of accidents. The on-site access road would be designed with a minimum width of 24 feet. Other service roads would be designed with a minimum width of 16 feet. The site plan would be designed such that all transport vehicles would have looped access and not have to back up at any point during delivery of chemicals. A minimum 60-foot turning radius would be allowed for truck deliveries. Roadways within the site would provide service access to all sides of the Altamont WTP facilities. Delivery of chemicals would be away from the center of general operations and visitors. Truck traffic would be separated from visitor traffic to the maximum extent possible.	(I)
Hazardous Materials and Public Safety (Continued)		
Impact 3.2.5-3 (PS) Excavation of the potential sites for construction of the foundations of the various units of the treatment plant, and excavation for some of the units like the sludge drying bed, could expose construction personnel and members of the public to existing soil and groundwater contamination, if any exists.	3.2.5-3 Zone 7 would prepare a Phase I Environmental Site Assessment for areas of the preferred project site where earth-moving activities could occur. The investigation would list current and past uses of the lot, review environmental agency databases and records, report site reconnaissance observations, and summarize potential contamination issues, including any that warrant further investigation. The Phase I Environmental Site Assessment would be completed by a Registered Environmental Assessor or a similarly qualified professional prior to initiating earth-moving activities at the site.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
	If determined to be necessary as a result of the Phase I investigation, Zone 7 would prepare a Phase II Environmental Site Assessment. Soil and groundwater samples would be collected as directed by the site assessment consultant. Sampling would extend at least to depths proposed for excavation. The samples would be analyzed to identify and quantify any contamination. The Phase II Environmental Site Assessment would be completed by a Registered Environmental Assessor or a similarly qualified professional prior to initiating earth-moving activities at the site. Site work would be performed in consultation with the Alameda County Department of Environmental Health and other agencies, as appropriate. If soil or groundwater conditions warrant the preparation of a Site Safety and Health Plan (a California Division of Occupational Safety and Health requirement for work at hazardous waste sites), in addition to measures that protect on-site workers, the plan would include measures to minimize public exposure to contaminated soils. Such measures would include dust control, appropriate site security, restriction of public access, and posting of warning signs, and would apply from the time of surface disruption through the completion of earthwork construction.	
Hazardous Materials and Public Safety (Continued)		
Impact 3.2.5-4 (I) The project would result in relatively little hazardous waste generation.	3.2.5-4 None required.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.2.5-5 (I) Project-related hazardous materials use could contribute to cumulative human and environmental health and safety issues, including hazardous materials transportation, hazardous waste generation and disposal, and demands for emergency response capabilities. However, the cumulative effect would not be sufficient to cause an adverse impact.	3.2.5-5 None required.	(I)
3.2.6 Air Quality		
Impact 3.2.6-1 (PS) Short-term construction-related activities such as grading could result in fugitive dust and equipment exhaust emissions that would cause a nuisance. Unless reduced by implementation of feasible control measures, impacts caused by construction emissions would be potentially significant. Grading would be required to develop each of the sites.	3.2.6-1 To reduce fugitive dust and equipment exhaust, Zone 7 and its contractor should implement the following control measures based on BAAQMD guidelines: Cover all trucks hauling construction debris from the site; Water all exposed or disturbed soil surfaces at least twice daily; Temporarily pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved parking areas and staging areas; Sweep daily (with water sweepers) all paved parking areas and staging areas; Provide daily clean-up of mud and dirt carried onto paved streets from the site; Install wheel washers for all existing trucks, or wash the tires or tracks of trucks and equipment leaving the site; Install wind breaks, or plant trees/vegetative wind breaks at windward sides of construction areas; Suspend dust-producing activities during periods when instantaneous gusts exceed 25 mph when dust control measures are unable to avoid visible dust plumes; Limit the area subject to excavation, grading and other construction or demolition activity at any one time;	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Air Quality (continued)	Water with ½ gallon/yd^2 twice daily or cover stockpiles of debris, soil, sand, or other materials that can be blown by the wind; Apply soil stabilizers to previously-graded portions of the site inactive for more than ten days or cover or seed these areas; Limit traffic speeds on unpaved areas to 15 miles per hour; Replant vegetation in disturbed areas as quickly as possible.	
Impact 3.2.6-2 (I) Regional air emissions caused by project operation would not exceed the BAAQMD's significance thresholds of 80 pounds per day for ROG, NOx, and PM_{10} emissions.	3.2.6-2 None required.	(I)
Impact 3.2.6-3 (I) The proposed project would not expose the public to toxic air contaminants (TAC) or objectionable odors, because only minor new stationary sources or TAC- or odor-emitting activities are proposed.	3.2.6-3 None required.	(I)
Impact 3.2.6-4 (I) The localized carbon monoxide concentrations caused by project traffic would not have the potential to cause localized violations of ambient air quality standards.	3.2.6-4 None required.	(I)
Impact 3.2.6-5 (I) Because the proposed project would not significantly increase contributions to regional air emissions and the project would not conflict with applicable region-wide air quality plans, the project's effects would not be cumulatively considerable, and, therefore, would not be significant.	3.2.6-5 None required.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
3.2.7 Noise		
Impact 3.2.7-1 (PS) Short-term construction-related activities may intermittently generate noise levels above the standards in Alameda County General Ordinance.	3.2.7-1 To reduce construction noise effects, Zone 7 would require construction contractors to adhere to the noise abatement procedures and techniques listed below. To the extent possible, limit construction work to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. on Saturday. Muffle equipment used on the site and maintain it in good operating condition. Internal combustion engine-driven equipment shall be fitted with intake and exhaust mufflers that are in good condition. Limit idling of powered construction equipment when not in use. When possible, shield noise-generating construction equipment from nearby existing residences (with, for example, a structure or possibly a truck) or locate equipment as far as possible from residences. Schedule noisy operations so as to minimize their duration at any given location.	(I)
Impact 3.2.7-2 (PS) Operation of the water treatment plant may expose adjacent residents to increased noise levels.	3.2.7-2 After site selection and prior to final design, an acoustical study shall be prepared to determine potential Altamont WTP noise levels at the site property line. The Altamont WTP shall be designed so noise generated by the plant would not cause noise levels at the property line to exceed the standards of the Alameda County General Ordinance (Section 6.60.040, Exterior Noise Level Standards). Final design could include measures such as housing and/or muffling significant noise sources, installing sound walls at the facility, grading the site to provide earthen berms, or locating facilities with increased setbacks from site boundaries.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

TABLE S-1
ZONE 7 ALTAMONT WATER TREATMENT PLANT SITE SELECTION
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (continued)

Impacts (Significance Without Mitigation)	Mitigation Measures	Impact Significance With Mitigation
Impact 3.2.7-3 (I) Project-related operational traffic would increase ambient noise conditions along roads accessing the site but not sufficiently to affect nearby existing residents adversely.	3.2.7-3 None required.	(I)
Noise (Continued)		
Impact 3.2.7-4 (I) Noise from project operation would not substantially contribute to cumulative noise levels near the project site.	3.2.7-4 None required.	(I)

Legend: (S) Significant Adverse Impact (PS) Potentially Significant Adverse Impact (I) Insignificant Impact

1. INTRODUCTION

1.1 PURPOSE OF THE EIR

This Environmental Impact Report (EIR), for the Altamont Water Treatment Plant Project (the project), has been prepared in conformance with the provisions of the California Environmental Quality Act (CEQA) Guidelines as amended.[1] The purpose of this EIR is to provide the lead agency, which is Zone 7 of Alameda County Flood Control and Water Conservation District (also known as Zone 7 Water Agency), other public agencies, organizations and the public in general with information about the environmental effects of the Altamont Water Treatment Plant Project. This is accomplished through the examination of environmental effects, the recommendation of procedures to mitigate adverse environmental effects (should the project be approved), and consideration of alternatives to the project as proposed which could reduce the environmental effects. The law itself (CEQA) provides that public agencies, such as Zone 7 Water Agency (Zone 7), should not approve projects until all feasible means available have been employed to substantially lessen the significant environmental effects of such projects. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.[2]

The EIR will be considered at a public hearing by members of the Board of Directors for the Zone 7 Water Agency (Zone 7 Board). Because of the area-wide importance of maintaining an adequate water supply, other community agencies, such as Alameda County and the City of Livermore, are expected to review the EIR and comment upon it during the public review period prior to Zone 7's decisions on the project. Certification of the Final EIR by the Zone 7 Board as complete and adequate in conformance with CEQA does not in itself grant approval for the project. Project approval will be considered by the Zone 7 Board in a separate action, following certification of the EIR. Certification of the EIR and approval of the project may occur at the same Board meeting.

LEVEL OF ANALYSIS

This is a **project-level** EIR that examines the effects of implementing the component facilities of the Altamont Water Treatment Plant. Those facilities are shown in Figure 1-1 in relation to other nearby parts of Zone 7's existing and future water supply and delivery system, northeast of the City of Livermore. Section 2, Project Description, of this EIR provides detail about the

project components, including an enlarged map of the immediate project area. Briefly, the proposed project facilities would consist of an intake structure and pump station at the Dyer Canal Backsurge Pool, and a raw water conveyance pipeline from the backsurge pool to a new water treatment plant. A finished water transmission pipeline from the water treatment plant to a connection with the future Altamont Pipeline or North Livermore Pipeline would be the subject of a future project-level EIR. The water treatment plant would be on one of the three study sites shown in Figure 1-1. Most of the conveyance and transmission pipelines would be in existing roads, rights-of-way or easements.

The proposed Altamont Water Treatment Plant project is itself a component of a larger system — Zone 7's water supply, treatment and delivery system — which is, in turn, part of the infrastructure of the Livermore-Amador Valley community. It is appropriate for this EIR to relate the proposed project to other components of the Zone 7 system and the surrounding community, at a **programmatic level**. Some of those components, such as the Zone 7 Facilities Master Plan or the water supply agreements that would provide water for the proposed water treatment plant, already are in place and have been the subject of recent EIRs (see Existing Related Projects, below). Information from those EIRs was used in the preparation of this EIR, and is incorporated by reference or cited as appropriate. Although further environmental analysis of issues resolved in the recently certified EIRs is not required, this EIR reviews those issues in the context of the proposed Altamont Water Treatment Plant project.

Other components of the Zone 7 delivery system, such as the future modifications to raw water conveyance or additional conveyance facilities from Bethany Reservoir to the Dyer Canal Backsurge Pool or the future construction of the Altamont Pipeline and North Livermore Pipeline, are still in the investigation and planning stage (see Future Related Projects, below). Information about those components has been provided by Zone 7's managers and engineers, and has been addressed at a programmatic level in this EIR. This approach has been selected in order to provide current information to the Zone 7 Board, the agencies, and the public about future projects related to the Altamont Water Treatment Plant Project. Although specific details of the future projects have not been established, it is possible to predict the types of issues that will be encountered. For example, even though the exact location of a future pipeline is not known, the end points and general alignment are known. An overview of the terrain in the vicinity of that alignment will provide the generic environmental conditions that could be affected by that future pipeline.

EXISTING RELATED PROJECTS

The proposed Altamont Water Treatment Plant is part of Zone 7's Water Supply Planning Program, which was examined in the *Zone 7 Water Agency Water Supply Planning Program, Program EIR* (SCH #98041040), certified on July 21, 1999. That document examined the broad environmental issues associated with Zone 7's goal of obtaining as much as 40,400 acre-feet-annually (afa) of additional average-year supply to meet water demand within its service area through the year 2020. The Water Supply Planning Program EIR, and the other Environmental and technical documents are available for public inspection at the Zone 7 Water Agency Office. Portions of those documents are incorporated by reference and/or cited in the resource analyses prepared for this EIR.

At a project level, the Water Supply Planning Program EIR examined environmental effects associated with near-term projects including water transfers, purchase of groundwater storage capacity, and the use of the South Bay Aqueduct to provide the needed water. The projects examined in the Water Supply Planning Program EIR include:

- a new 15-year contract with the Byron-Bethany Irrigation District for as much as 5,000 afa;
- up to 15,000 afa of State Water Project entitlements from the Kern County Water Agency;
- the advance purchase of an additional 10,000 afa of State Water Project entitlements from the Kern County Water Agency;
- the groundwater storage capacity project includes 22,000 acre-feet of storage purchased from the Semitropic Water Storage District; and
- the use of the South Bay Aqueduct includes purchasing 22,000 afa of existing conveyance capacity from the Department of Water Resources.

The environmental issues associated with these projects to expand the Zone 7 water supply were resolved in the recent Water Supply Planning Program EIR and the projects are completed.

At a program level, the Water Supply Planning Program EIR examined the environmental effects associated with long-term projects, one of which was improvement of the capacity of the South Bay Aqueduct. This would involve constructing a raw water conveyance line from Bethany Reservoir to the Dyer Canal Backsurge Pool, known as Line B4-A; increasing the capacity of the South Bay Pumping Plant at Bethany Reservoir; and modifying the existing surge towers for the Brushy Creek Pipeline.

At the opposite end of the treated water supply system are the issues related to disposal of some of the water after use. The *Livermore-Amador Valley Water Management Agency Export Pipeline Facilities Project EIR* (SCH #97072090), certified on June 25, 1998, examined the effects of constructing and operating expanded wastewater disposal facilities designed to serve future growth in the Livermore-Amador Valley Water Management Agency (LAVWMA) service area. The LAVWMA service area includes the cities of Livermore, Pleasanton, and Dublin, which also are in the Zone 7 service area. At a project level, that document examined environmental effects associated with new and/or rehabilitated pipelines, pumping stations, and connections; and an integrated flow management program. At a programmatic level, the LAVWMA Export Pipeline Facilities Project EIR examined the expansion of the Livermore and Dublin San Ramon Services District water reclamation plants. That EIR recognized that expansion of both plants would be necessary to meet the demands of new planned development in their respective service areas.

The Integrated Flow Management Programs in the Dublin and Livermore areas were the subject of a previous EIR (Dublin, certified in January 1997) and a Negative Declaration (Livermore, adopted November 1996). The programs include additional wastewater treatment to improve water quality, followed by recycling (injection) to increase the quantity of groundwater in the in-valley basins. Although the LAVWMA export pipeline would carry most of the 21 MGD of treated wastewater out of the valley, up to 3.25 MGD of wet-weather flow would receive further treatment and may be injected for groundwater recharge.

The environmental issues associated with these projects to expand the wastewater treatment plants and to develop new options for wastewater reuse/disposal were examined and resolved in the recent LAVWMA Export Pipeline Facilities Project EIR. However, they are discussed in Appendix F of this EIR to provide the reader with the context in which the proposed Altamont Water Treatment Plant would operate.

FUTURE RELATED PROJECTS

The current Water Supply System Five-Year Capital Improvement Program identifies the proposed Altamont Water Treatment Plant as one of seventeen projects in the Water Treatment Facilities Program to be completed by 2006.[3] In all, nearly forty capital improvement projects throughout Zone 7's system would be under way by 2006. Other than the Altamont Water Treatment Plant, they include replacement/upgrading of substantial portions of the Del Valle and Patterson Pass water treatment plants; new Busch-Valley and Chain of Lakes well fields, and upgrading the Mocho well field; new and replacement monitoring wells, conveyance pipelines and transmission pipelines; replacement/upgrading of flow meters and recorder stations; installation of system-wide landscaping; wellhead demineralization; and expansion of

the administrative building. Each of those projects, or groups of closely related projects, which require CEQA review, will be examined in a project-specific environmental review document. Detailed assessment of those related projects does not form part of this EIR.

Of the future projects, two areas of study are closely related to the proposed Altamont Water Treatment Plant Project. One is a water supply conveyance study to determine a recommended raw water pipeline alignment in the Line B-4A corridor between Bethany Reservoir and the Dyer Road Backsurge Pool (see Figure 1-1). The backsurge pool is where the South Bay Aqueduct transitions from pressure pipeline (existing Brushy Creek Pipeline) to open channel (Dyer Canal). Two of the options being considered by the study would include modifications to existing facilities. Two other options would involve the addition of new facilities. The least expensive modification option would consist of increasing the pumping capacity of the existing South Bay Aqueduct Pumping Station at Bethany Reservoir and raising the surge towers on the Brushy Creek Pipelines. These modifications would increase the hydraulic gradient (and therefore capacity) of the existing Brushy Creek Pipelines. The second, more substantial, modification option would consist of inserting polyurethane liners in the existing Brushy Creek Pipelines to improve their hydraulic smoothness (and therefore capacity), raising the sidewalls of Dyer Canal to increase its capacity, and adding larger capacity pumps to the existing South Bay Aqueduct Pumping Station. The third option would be to construct a new pipeline in the Brushy Creek Pipeline corridor and add larger capacity pumps to the South Bay Aqueduct Pumping Station. The fourth option also would involve construction of a new pipeline, but of larger capacity, and would include other improvements, such as a new intake and pumping station at Bethany Reservoir, a new South Bay Aqueduct pumping station, and enlargement of Dyer Canal.

Another area of study will be the preparation of engineering assessments of possible alignments for the Altamont Pipeline and the North Livermore Pipeline. These pipelines would carry water treated by the proposed Altamont Water Treatment Plant from the Altamont area to the North Livermore Specific Plan area and then across the Specific Plan area to a connection to the existing Zone 7 distribution system near the intersection of Kitty Hawk Road and Airway Boulevard (see Figure 1-1).

Neither of these projects has reached the EIR stage, but when they do, project-level EIRs will be prepared for them. For the purposes of this EIR, both of these alignment corridors have been addressed at the programmatic level to provide the reader with the context in which the proposed Altamont Water Treatment Plant project would be constructed and operated. Further information appears in Section 2, Project Description, of this EIR.

1.2 EIR SCOPING

NOTICE OF PREPARATION

On February 25, 2000, Zone 7 Water Agency issued a Notice of Preparation (NOP) that an EIR would be prepared for the proposed Altamont Pass Water Treatment Plant Site Acquisition Project EIR. A Project Description was attached to the NOP, which appears as Appendix A of this EIR.

The NOP was submitted to local and regional agencies (Bay Area Air Quality Management District, Alameda County Planning Department, Association of Bay Area Governments, etc.), adjacent communities (cities of Dublin, Livermore and Pleasanton), local service providers (such as the City of Livermore Water Department, Dublin San Ramon Services District), and the State Office of Planning and Research. The NOP also was submitted to responsible State agencies (California Department of Fish and Game, Department of Transportation, Air Resources Board, etc., and federal responsible agencies (such as the U.S. Fish and Wildlife Service). The purpose of the NOP was to allow these and other public agencies to transmit their concerns and comments on the scope and content of the EIR, focusing on specific information related to their own statutory responsibility early in the environmental review process.

In response to the NOP, letters of comment were received from the following agencies:

State Agencies

- California Department of Transportation, District 4
- Native American Heritage Commission

Local Agencies

- Alameda County Public Works Agency
- Dublin San Ramon Services District
- East Bay Regional Park District

PUBLIC SCOPING MEETING

In addition to the Notice of Preparation and responses thereto, Zone 7 conducted a public scoping meeting at the Zone 7 Water Agency's office at 7:00 P.M. on March 14, 2000. The purpose of the scoping meeting was to allow individuals and the public at large to express the environmental concerns they believed should be addressed in the EIR for the proposed project,

and for the EIR preparers to record those expressed concerns. After introductions by Zone 7 staff and the EIR consultants, brief overviews of the project and the EIR process were presented. A discussion session followed, and meeting attendees raised numerous concerns, which were grouped into primary issue categories, as listed below under "EIR Study Topics." The meeting concluded at about 9:00 P.M. Minutes of the meeting are available at the Water Agency office.

Subsequent to the scoping meeting, all comments were summarized and distributed to all meeting attendees, as well as to other residents of Dyer Road and Laughlin Road, which are near the study sites. Resulting action items included organization of a field trip to Zone 7's Del Valle Water Treatment Plant on April 29, 2000; provision of the earlier technical document scoping ten original sites and selection criteria to a resident near the study sites; and notice of the next public meeting scheduled to be held during the public comment period on the Draft EIR. The probable date is early February at the Water Agency office in Pleasanton.

SUBSEQUENT SCOPING CHANGES

The project described in the NOP addressed the land acquisition for, and the construction of, a water treatment plant on one of three sites, and the associated conveyance and transmission pipelines alignment options. The three sites were Altamont Pass Road Site #1, Laughlin Road Site #3, and Dyer Road Site #1. The alignment options included an overland route just south of Brushy Peak, and a right-of-way route that would follow existing roads and designated rights-of-way for future roads throughout the vast majority of its length. No site or alignment was designated as the preferred option; each was to be analyzed in equal depth.

About two months after the public scoping meeting, Zone 7 learned that another property was available on the west side of Dyer Road; this property was designated Dyer Road Site #5. The site had not been evaluated earlier because it was thought to contain a residence. Because Zone 7 prefers to avoid displacing residences, the site was not considered further. Subsequently, one of the owners indicated that the site could be severed from the existing parcel. Zone 7 and one of the owners determined that a portion of the parcel large enough to contain the water treatment plant could be made available without including the residence. Dyer Road Site #5, as described in this EIR, was subjected to the same fatal flaw analysis as the ten original sites, and added to the list of previously evaluated sites.

About five months prior to the publication of this EIR, the East Bay Regional Park District contacted Zone 7 with the information that the Park District had purchased a 408-acre parcel which included Altamont Pass Road Site #1. The purchase included establishing deed restrictions and a conservation easement for the entire parcel in order that it remain as open

space in perpetuity. Because these actions preclude the use of Altamont Pass Road Site #1 for a water treatment plant, the site has been withdrawn from consideration. Information already collected for the site is presented in the Section 6, Alternatives, of this EIR.

The option of an overland pipeline alignment south of Brushy Peak was withdrawn about three months after the public scoping meeting. By that time the technical analyses were revealing that the alignment had several unfavorable aspects associated with it. These included the large pumping costs to lift raw or treated water an additional 260 feet over the ridge west of Dyer Road, the need for a permanent access road parallel to the pipeline, the visual impact of the road on the Brushy Peak viewshed, and the fragmentation of San Joaquin kit fox habitat that would be caused by the road. On the basis that the route was severely constrained, both hydraulically and environmentally, Zone 7 withdrew that alignment from consideration. The remaining concept of an alignment that generally would follow existing roads and designated rights-of-way for future roads was the only option that avoided the issues associated with overland routes.

EIR STUDY TOPICS

In response to the March 14, 2000 scoping meeting and letters received as a result of the Notice of Preparation, major EIR topics to be studied include:

- Land Use
- Visual Quality
- Recreational Resources
- Cultural Resources
- Traffic and Circulation
- Biological Resources
- Soils, Geology and Seismicity
- Hydrology
- Water Quality
- Hazardous Materials and Public Safety
- Air Quality
- Noise
- Growth Inducement
- Alternatives to the Proposed Project

Accordingly, the environmental effects of implementing the project are analyzed under each topic listed above, as well as other topics required by CEQA. Each of these topics is discussed in the subsequent technical sections of this EIR (Sections 3 through 8).

1.3 STANDARD FOR ADEQUACY

Section 15151 of the CEQA Guidelines specifies that an EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision which intelligently takes account of environmental consequences. Where a particular project effect is too speculative for evaluation, discussion of the effect is substantially shortened.

The following standards for adequacy are described in CEQA:[4]

- An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.
- Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts.
- The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

1.4 SIGNIFICANT EFFECT ON THE ENVIRONMENT

In accordance with Section 15143 of the CEQA Guidelines, this EIR focuses on the project's significant and potentially significant effects on the environment. Each area of discussion (i.e., Hydrology, Cultural Resources, Biological Resources, etc.) provides criteria for evaluating whether an environmental impact is significant or not. As explained in Section 15002(g) of the CEQA Guidelines, a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.

The identification of an impact using the term "insignificant" is not defined in the CEQA Guidelines. For the purposes of this EIR, an insignificant environmental impact is one in which there is no substantial adverse change in environmental conditions.

Short-term construction impacts, as well as the long-term operational impacts, are analyzed as appropriate for the various topics. This EIR focuses on evaluating the environmental impacts of three sites, one of which would be acquired by Zone 7 for the construction of water treatment facilities in the Altamont Pass area.

The EIR analysis addresses the project as proposed, based on the material contained in the technical engineering reports prepared for Zone 7 and environmental investigations consistent with Section 15146 of the CEQA Guidelines. The technical engineering reports are listed in endnote 5 of this Introduction, and are available for public review at the Zone 7 Water Agency office.[5] Some of the descriptive information from the Treatment Processes Evaluation Technical Memo has been included in Appendix B of this EIR to familiarize the reader with the treatment alternatives being considered.

There are no known significant unavoidable impacts directly associated with the proposed Altamont Water Treatment Plant Project, as discussed in Sections 3 through 8 of this EIR. There are biological effects that would be unavoidable, but would be reduced to a less than significant level through mitigation. These are discussed in Section 5, Unavoidable Significant Adverse Impacts.

Determining that a mitigation measure reduces a significant impact to a level of insignificance rests with understanding the criteria for determining an impact significant. If the threshold of significance is not exceeded, the impact is considered insignificant. For any significant unavoidable impact that cannot be substantially mitigated, Zone 7, as the Lead Agency, is required by CEQA to prepare a Statement of Overriding Considerations in which the Lead Agency sets forth in writing its views on the ultimate balancing of the merits of approving a project despite the environmental impacts which would result from project implementation. This process requires that the Lead Agency, as the decision-maker regarding the project, weigh the benefits of the proposed project against its unavoidable environmental risks in determining whether or not to approve the project. The Statement is preserved in the record of project approval (if a project is approved), and is prepared after the Final EIR has been certified.

In this EIR, in the discussion of environmental impacts and mitigation measures, a code is used to convey information regarding the significance of impacts before and after mitigation. The codes and their meanings are as follows:

(S) = Significant adverse impact
(PS) = Potentially Significant adverse impact
(I) = Insignificant impact

In Section 3, Environmental Setting, Impacts and Mitigation Measures, the impacts for each environmental topic are indicated with one of the above codes following the identification of impact. The mitigation measure(s) for that environmental impact is followed with four lines of information as shown in the following example.

Mitigates:	Impact 1.1 (I)
Implementation:	Construction Phase
Responsibility:	Contractor
Monitoring:	Lead Agency

The interpretation of this example is: 1) the measure mitigates impact number 1.1 to a level of insignificance (I); 2) the mitigation measure should be implemented during the project construction phase; 3) the contractor would be responsible for implementing the mitigation measure, and 4) Lead Agency would monitor the implementation and success of the mitigation measure, as defined further in this EIR.

It will be noted by the reader that some of the mitigation language in this EIR has been adapted from the North Livermore Specific Plan, the East County Area Plan and the Water Supply Planning Program EIRs. Although the programs discussed in these documents will be updated or modified as part of the normal planning process, the set of mitigation concepts expressed in them remain a valid basis for formulating mitigation language in the vicinity of the proposed project.

1.5 GROWTH INDUCEMENT

The Altamont Water Treatment Plant was specifically identified in the *Zone 7 Water Agency Water Supply Planning Program EIR* as one of the facilities needed to provide sufficient domestic water to support a level of growth that is consistent with the amount of growth planned and approved by the planning agencies within Zone 7's Service Area.[6] The discussion of growth inducement in the Water Supply Planning Program EIR illustrates how the General Plans, General Plan Amendments, Specific Plans, and associated EIRs for the counties and cities in the Zone 7 service area address the effects of planned growth in the Livermore-Amador Valley. Review of that discussion revealed no growth inducing effects for the Altamont Water Treatment Plant Project that were not addressed in the Water Supply Planning Program EIR. That discussion is incorporated by reference and summarized in Section 4, Growth Inducement, of this EIR, for informational purposes. Because that discussion of growth inducing effects addressing the Altamont Water Treatment Plant is current (the Water

Supply Planning Program EIR was certified in July of 1999), there is no need to repeat the entire evaluation process for this EIR.

1.6 ALTERNATIVES TO THE PROPOSED PROJECT

The alternatives analysis presented in this EIR focuses on site selection for the Altamont Water Treatment Plant Project. Alternative conveyance routes were reduced to one per site through the environmental examination of possible corridors. Either of the treatment processes considered in Section 2, Project Description, of this EIR, could work at any of the alternative sites. Although ten potential sites for the project were identified, eventually only three met all the criteria for further environmental examination. Of those three sites, Dyer Road Site #5 (see Project Description) has the fewest environmental constraints. CEQA requires the identification of an environmentally superior alternative for each project reviewed. The environmentally superior alternative for the Altamont WTP is Dyer Road Site #5.

1.7 CUMULATIVE IMPACT ASSESSMENT

Cumulative impacts are discussed in this EIR. Cumulative effects associated with the Altamont Water Treatment Plant Project occur in the subject areas of Visual Quality and Hydrology. Cumulative impacts refer to two or more individual effects, which, when considered together, compound or increase environmental impacts. For example, the cumulative impact from several projects is the change in environmental conditions which results from the incremental impact of each project when added to other closely related past, present and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time.

1.8 MITIGATION MONITORING AND REPORTING

Section 15097 of the California Environmental Quality Act (CEQA) requires public agencies to adopt mitigation monitoring and reporting programs, as part of their Findings following the certification of an EIR, to ensure that mitigation measures or revisions to the project that reduce, eliminate, or avoid significant effects on the environment are implemented.

CEQA requires that a monitoring and reporting program be adopted when a public agency has made its findings under paragraph (1) of subdivision (a) of Section 15091 relative to an EIR…" The monitoring and reporting program need not be a component of the EIR, and cannot be adopted until after the EIR is certified. The program is part of the project approval process, not necessarily part of the impact analysis process. The monitoring and reporting

program will be included with the Findings for the Altamont Water Treatment Plant project, should the project be approved by the Zone 7 Board.

NOTES - Introduction

1. *State of California Environmental Quality Act, Guidelines, CCR Title 14 Section 15000 et seq*, updated October 1998.

2. Public Resources Code Section 21061.1.

3. Zone 7 Water Agency, *Fiscal Year 2000/01 Water Supply System Five-Year Capital Improvement Program*, August 1999.

4. CEQA Guidelines Section 15151.

5. (a) Montgomery Watson Engineers, *Altamont Water Treatment Plant, Treatment Facilities Site Feasability Technical Memorandum*, prepared for Zone 7 Water Agency, May 30, 2000, Anne Braghetta, Project Engineer.

   (b) Montgomery Watson Engineers, *Altamont Water Treatment Plant, Treatment Process Evaluation Technical Memorandum*, prepared for Zone 7 Water Agency, June 15, 2000, Anne Braghetta, Project Engineer.

   (c) Montgomery Watson Engineers, *Altamont Water Treatment Plant, Conveyance Evaluation Technical Memorandum*, prepared for Zone 7 Water Agency, May 31, 2000, Anne Braghetta, Project Engineer.

6. Zone 7, Alameda County Flood Control and Water Conservation District, *Zone 7 Water Agency, Water Supply Planning Program, Program EIR*, SCH # 98041040, certified July 21, 1999, pp. 7-1 through 7-120. Prepared by Environmental Science Associates.

2. PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND AND LOCATION

BACKGROUND

As one of the ten active zones of the Alameda County Water Conservation and Flood Control District, Zone 7 has served eastern Alameda County and the Livermore-Amador Valley since 1957. Currently, Zone 7 provides treated and untreated water, flood control, and groundwater management to a population of about 180,000 in a 425-square-mile service area, which includes the cities of Dublin, Livermore, and Pleasanton, and adjacent unincorporated areas of Alameda County.[1]

The studies embodied in Zone 7's Water Supply Planning Program identified the potential need for a new water treatment plant in the Altamont Pass area north of Interstate Highway 580
(I-580) and west of the South Bay Aqueduct (Figure 2-1, Regional Location Map).[2] As one component of Zone 7's Water Supply Planning Program for the next 5 years, a new water treatment plant in this area was recommended to move Zone 7 toward a three-plant configuration that would provide up to 96 million gallons per day (MGD) total for municipal and industrial needs through the year 2020.

The proposed Altamont Water Treatment Plant (WTP) is part of the Water Supply Planning Program, which was examined in a Program EIR (SCH #98041040), certified July 21, 1999. The current *Water Supply System Five-Year Capital Improvement Program* identifies the proposed Altamont WTP as one of seventeen projects in the Water Treatment Facilities Program to be completed by the year 2006.[3] Each of those projects will be examined in a project-specific environmental review document. Some of those projects relate directly to the proposed Altamont WTP, such as the North Livermore Pipeline to connect the water treatment plant to the existing distribution system in North Livermore. A detailed assessment of those related projects does not form part of the current EIR (see Section 1, Introduction).

SCREENING CRITERIA

Ten sites in the Altamont Pass area were originally examined as possible locations for the proposed water treatment plant. The Altamont Pass area was selected as the general location for the water treatment plant because site elevations would be sufficient to maximize the use of

available head (pressure) from the South Bay Aqueduct, thus reducing the need for and/or cost of pumping water to all elevation zones in the Zone 7 service area. Other initial site selection criteria included:

- a minimum site size of 20 acres to accommodate the various operations at the facility;
- a site shape that would eliminate undue design and construction costs; and
- a relatively flat site to eliminate the need for an excessive amount of grading.

All the sites were screened for the following categories of constraints:

- Engineering and Operational Concerns:
  - elevation range
  - size of acreage available
  - raw water pumping needs
  - treated water pumping needs
  - need for additional pipelines or tunnels
  - access to the site
- Geotechnical Concerns:
  - on-site fault traces
  - groundwater presence
- Environmental Concerns:
  - San Joaquin kit fox mitigation issues
  - wetland presence
  - existing residential land use

Issues in each of the categories at each site were evaluated and rated as minor (relatively easy to address), major (relatively difficult to address), or fatal flaws (sufficient to prevent project implementation). The constraints analysis was completed in June 1999 by Camp Dresser & McKee.

SELECTED SITES

Of the ten sites identified and analyzed in the *Treated Water Facilities Master Plan,*[4] three passed the site screening process.[5] Those three sites were Dyer Road Site #1, Altamont Pass Road Site #1, and Laughlin Road Site #3. In response to Zone 7's continued examination of siting issues, as well as concerns expressed during the scoping period, a fourth site, Dyer Road Site #5, was added to the investigation. That site was screened using the same procedure as the previous ten sites and found to meet the basic criteria to be included in the environmental assessment. The purchase of the parcel containing Altamont Pass Road Site #1

by the East Bay Regional Park District, as explained in Section 1, Introduction, of this EIR, precluded the use of the site for a water treatment plant. Consequently, it was withdrawn from further consideration. The three remaining alternative sites form the location of the proposed project being addressed in this Environmental Impact Report (Figure 2-2). The three siting options are discussed below in Section 2.3, Siting Alternatives.

ASSOCIATED PIPELINES

Conveyance facilities to transport raw water and transmission facilities to transport treated water are components of Zone 7's system for moving water related to the Altamont WTP Project. Raw water for the proposed Altamont WTP would be supplied by a new intake at Bethany Reservoir on the California Aqueduct. From the new intake, the water would be conveyed through the existing Brushy Creek Pipelines (the furthest upstream reach of the South Bay Aqueduct) and/or through a new pipeline within the Brushy Creek Pipeline Corridor to the existing Dyer Canal Backsurge Pool at the upstream (north) end of the Dyer Canal reach of the South Bay Aqueduct. From the Backsurge Pool, a raw water pipeline would be extended to the proposed Altamont WTP (see Figure 1-1 and Figure 2-2). Several options for raw water conveyance between Bethany Reservoir and the Dyer Canal Backsurge Pool are being considered in a separate study for Zone 7's future Line B4-A, the new or modified conveyance facilities along the Brushy Creek Pipeline Corridor. These options are not part of the Altamont WTP Project, and would be addressed in a separate project-level EIR. They are described briefly in Section 1, Introduction, of this EIR, under Future Related Projects, and in Section 2.5, Conveyance Alternatives, of this EIR.

Depending on the alternative location selected as the site for the Altamont WTP, either a raw water pipeline or a treated water pipeline would be installed along the Altamont Pass Road (APR) Alignment (Dyer Road, Altamont Pass Road, Northfront Road and Laughlin Road). If Laughlin Road Site #3 were selected, a pipeline in the APR Alignment would carry raw water from the Backsurge Pool to the Altamont WTP. An alternative route (APR-2) for the portion of the Altamont Pass Road Alignment between the Greenville Road/Altamont Pass Road intersection and Laughlin Road also is being considered because it would shorten the route by approximately 9 percent (see Section 2.5, Conveyance Alternatives, of this EIR).

If Dyer Road Site #5 or Dyer Road Site #1 were selected, a pipeline would be needed along the APR or APR-2 Alignment to carry treated water to a connection with Zone 7's future North Livermore Pipeline about one-half mile north of the Scenic Avenue/Vasco Road intersection. This would be the Altamont Pipeline: it is not part of the Altamont WTP Project, and would be

addressed in a separate project-level EIR. The future North Livermore Pipeline would extend west from the Altamont Pipeline to connect with Zone 7's existing and future transmission and distribution systems near the intersection of Kitty Hawk Road and Airway Boulevard. This pipeline also is not part of the Altamont WTP Project, and would be addressed in a separate project-level EIR. For further discussion of these treated water pipelines, see Section 2.5, Conveyance Alternatives, of this EIR.

Initially, another pipeline alignment option was considered: a cross-country alignment from the Dyer Canal Backsurge Pool to Laughlin Road. That alignment was eliminated during the examination process for the preparation of this EIR. The optional alignments are discussed below in Section 2.5, Conveyance Alternatives.

Zone 7 proposes to acquire only one of the potential sites for the construction of the Altamont WTP. All three alternative sites are included in the project for the purpose of studying and comparing the environmental constraints and opportunities related to each site, and thereby identifying the most economically feasible and environmentally suitable location for the proposed water treatment plant. Each of the sites is examined with respect to the environmental issues in Chapter 3, Setting, Impacts and Mitigation Measures, of this EIR.

2.2 PROJECT PURPOSE AND OBJECTIVES

The purpose of the proposed Altamont Water Treatment Plant project is to increase Zone 7 Water Agency's ability to supply treated water in order to serve future planned growth in its service area of Dublin, Pleasanton and Livermore through the year 2020.

The project objectives sought by the Zone 7 Water Agency are:

- to acquire land for the proposed water treatment plant;
- to construct the plant and its associated water supply intake, pumps and pipelines; and
- to phase the plant's capacity to keep pace with the needs for treated water in the service area.

The proposed Altamont Water Treatment Plant project consists of (1) the acquisition of a site on which to build the facilities, (2) the construction of an up to 24 MGD water treatment plant, in the year 2006, and (3) the possible expansion of the capacity of the water treatment plant to 42 MGD by the year 2016, depending on the demand for treated water. For the purposes of this EIR, the 42 MGD water treatment plant is assumed because it is a reasonably foreseeable development, reflecting the planned growth projected in local General Plans.

The proposed water treatment plant would be part of a conveyance/treatment/transmission system that contains eight elements: three future raw water conveyance elements, two proposed raw water conveyance elements, two proposed treatment elements, and one future treated water transmission element. In this EIR the future facilities are addressed at a programmatic level, and the proposed facilities at a project level. The three future raw water conveyance elements would consist of:

- a new intake structure at Bethany Reservoir;
- larger capacity pumps at the South Bay Pumping Station; and
- about 3 miles of new water supply conveyance pipeline from the South Bay Pumping Station at Bethany Reservoir to the Dyer Canal (South Bay Aqueduct) Backsurge Pool (future pipeline B4-A).

Alternatively, the future raw water conveyance components between Bethany Reservoir and the Dyer Canal Backsurge Pool could consist of:

- larger capacity pumps at the South Bay Aqueduct Pumping Station; and
- new interior pipe lining and modifications to existing surge towers to increase the hydraulic smoothness and gradient of the existing Brushy Creek Pipelines.

These elements of the system are part of the on-going Raw Water Conveyance Alternatives Analysis, which will be the subject of a future project-level EIR, but are addressed in this EIR at a programmatic level. They are shown in the upper right corner of Figure 1-1, in Section 1, Introduction, and in Figure 2-2.

The two conveyance elements proposed as part of the Altamont WTP project consist of:

- an intake structure at the Dyer Canal Backsurge Pool and nearby raw water pump station; and
- a raw water conveyance pipeline to transport water from the Backsurge Pool to the treatment facilities.

These elements of the proposed project are shown in the center of Figure 1-1 and Figure 2-2, and are described in more detail in the following Section 2.5, Conveyance Alternatives.

The two treatment elements proposed as part of the Altamont WTP project consist of:

- a surface water treatment plant capable of producing, initially, up to 24 MGD of drinking water (with capability for expansion up to 42 MGD), ozone generation or a membrane treatment process, and ancillary facilities including an operations and control building, chemical storage and feed systems, sludge drying beds (or sludge lagoons), washwater recovery facilities, parking areas, pumping systems, process water storage tanks, and an access road to the plant; and
- treated water storage reservoirs holding up to 10 million gallons of water.

These elements of the proposed project are shown for each of the three sites in foldout figures at the end of this section (Figures 2-6, 2-7, and 2-8). Site locations are shown in the center of Figures 1-1 and 2-2.

The future transmission element would consist of:

- treated water transmission pipelines (the Altamont Pipeline and the North Livermore Pipeline) to transport finished water from the proposed water treatment plant to the existing Zone 7 transmission and distribution system near the intersection of Kitty Hawk Road and Airway Boulevard.

This element of the system is part of the future studies of transmission facilities, which will be the subject of a future project-level EIR, but is addressed in this EIR at a programmatic level. It is shown in the lower left portion of Figures 1-1 and 2-2.

Engineering considerations differ for the three site alternatives for the water treatment plant and three initial pipeline routing alternatives evaluated as part of the proposed project. Therefore, the alternative sites were evaluated on the basis of acreage (for water treatment plant footprint flexibility and buffering), elevation (for pumping needs), accessibility, and current general plan land use designation and zoning requirements. In addition, estimates of earthwork quantities, staffing requirements, truck delivery frequency, construction requirements, and other environmentally significant site issues are considered for each of the alternative water treatment plant sites. Representations of a conventional treatment plant were developed for each site and appear in this EIR as Figures 2-6, 2-7, and 2-8 at the end of this section.

The Altamont WTP ultimately would have a production capacity of as much as 42 MGD. If this capacity were reached, it would be constructed in two or three stages over the next 20 years. The water treatment plant would be designed to meet both current and reasonably anticipated future drinking water regulations. Because drinking water regulations change over time, the new water treatment plant would be designed with process flexibility to allow the facilities to be modified, as needed, to meet the changing needs of potable water treatment

plants. Provision for phased, incremental expansion would allow water treatment capacity to be constructed as needed to meet water demand in the Livermore-Amador Valley. The major infrastructure for the water treatment plant (earthwork, roadways, piping, etc.) would be constructed in the initial construction phase, with specific process units being added in the final construction phase.

An undeveloped site of at least 20 acres, but no more than 50 acres, is needed for the proposed facility to accommodate the selected treatment option and supporting operations. Possible treatment options can be divided into two categories: clarification-granular media filtration with ozone, and membrane filtration with clarification pretreatment. Either of these options would need to include three support facilities: chemical feed systems (liquids and/or solids) for pretreatment, residual disinfection, and corrosion control; solids handling (consisting of spent washwater recovery), sludge dewatering and disposal facilities; and clearwell storage for the finished water. The two treatment options being considered are discussed below in Section 2.4, Treatment Alternatives.

The raw water conveyance facilities would originate at the South Bay Pumping Plant at Bethany Reservoir. Raw water would be conveyed to the Dyer Canal Backsurge Pool. From the Backsurge Pool the water would be conveyed to the proposed water treatment plant through a raw water pipeline. Future treated water transmission facilities would convey the water from the water treatment plant to Vasco Road and then across the North Livermore Specific Plan Area through the future Altamont Pipeline and the future North Livermore Pipeline. The product water from the proposed water treatment plant would be delivered to a connection with the existing Zone 7 transmission and distribution system near the intersection of Kitty Hawk Road and Airway Boulevard.

Two conveyance system alternatives were examined for the Altamont WTP project. To the extent possible, both the raw and treated water lines would follow existing roads or other public rights-of-way (see Figure 1-1 and Figure 2-2), and would be buried throughout their lengths. The routing and conceptual designs for conveyance facility alternatives providing raw water conveyance were addressed at a programmatic level between Bethany Reservoir and the Backsurge Pool, and at a project level between the Backsurge Pool and the water treatment plant sites. Because the future Altamont Pipeline (treated water) is expected to use the APR or APR-2 Alignment to connect with the future North Livermore Pipeline if a site on Dyer Road were selected for the Altamont WTP, a separate project-level EIR would be prepared to address issues raised by the construction of that pipeline. Consequently, the discussions of the APR and APR-2 Alignments is programmatic for that future treated water pipeline. Pipelines were assumed to be 42 inches in diameter, which is the approximate size needed to convey the ultimate expanded water treatment plant production of 42 MGD. Multiple, smaller pipelines

were not considered because of the inefficiency and disruption involved in constructing them twice for the initial and expanded phases of the water treatment plant.

2.3 SITING ALTERNATIVES

As shown in Figure 2-2, the three sites examined in this EIR are located northeast of the City of Livermore.[6] Using the intersection of Vasco Road and I-580 as a reference point, Dyer Road Site #1 and Dyer Road Site #5 are about 4.2 miles to the northeast, and Laughlin Road Site #3 is about 2.3 miles to the north-northeast.

Laughlin Road Site #3 is an approximately 50-acre site on the west side of Laughlin Road about 1.9 miles north of the intersection of Laughlin Road and Altamont Pass Road (Figure 2-3). The site is a rough oval, being about 1,700 feet long and about 1,300 feet wide. It occupies a promontory between 680 and 760 feet above sea level and is bisected by a shallow south-sloping declivity. The vegetation on the site is non-native grassland. The soil is Altamont clay. The current land use is grazing. Adjacent land use also is grazing on public and private land, except to the northwest where the Vasco Road landfill is located. There are no structures on the site, but there is a residence adjacent to the site to the southeast. The East Bay Regional Parks District owns about one-half acre of the northeast corner of the site, land adjacent to the site to the northeast and southeast along Laughlin Road, and north to Brushy Peak. The screening criteria indicate this site has geotechnical issues because the southwest portion of the site is within the Alquist-Priolo Earthquake Fault Zone for the Greenville fault. It also is on a ridgeline in the foothills above Vasco Road.

Dyer Road Site #5 is a 50-acre site on the west side of Dyer Road, approximately 1.5 miles north of the intersection of Dyer Road and Altamont Pass Road (Figure 2-4). The site occupies elevations between 800 and 1,000 feet above sea level, sloping to north and east, and containing rolling topography. The vegetation on the site is non-native grassland. Most of the soil is Altamont clay, but Cotati and Gaviota sandy loams also occur, as does a small area of exposed rock. The current land use is grazing, as is the adjacent land use, except to the south where rural residences are located. The site was selected based on elevation, topography and low visibility from surrounding residential and recreational land uses.

Dyer Road Site #1 is a 23-acre site on the east side of Dyer Road about 1.5 miles north of the intersection of Dyer Road and Altamont Pass Road (Figure 2-5). The site is about 2,500 feet long and as much as 500 feet wide, occupying the land between Dyer Road and the South Bay Aqueduct. Site elevations are between 780 and 820 feet above sea level. The site slopes gently to the southeast. The vegetation on the site is non-native grassland. Most of the soil is Cotati sandy loam, but about a quarter of the site is Altamont clay. The current land use is open rangeland, as is the adjacent land use, except to the west across Dyer Road where rural residences are located.

There are environmental concerns related to each alternative site associated with the previously mentioned screening criteria, identified either in the Camp, Dresser & McKee constraints analysis for the Treated Water Facilities Master Plan or more recently by Zone 7 Water Agency's consultants. The identified issues of concern included the presence of San Joaquin kit fox foraging habitat throughout the Altamont Pass area, the presence of species of concern in the vicinity of the sites, existing residential land uses near the sites, the presence of wetlands on Dyer Road Site #1, ridgeline development on Laughlin Road Site #3, the presence of the active Greenville fault adjacent to Laughlin Road Site #3, and effects on viewsheds between
I-580 and Brushy Peak, including impacts to visual quality and recreational resources.

2.4 TREATMENT ALTERNATIVES

Two treatment alternatives have been recommended by the technical consulting team (Montgomery Watson) for consideration:

- high-rate conventional treatment (clarification-granular media filtration) with ozone, and
- low-pressure membrane filtration with clarification pretreatment.

The environmental effects of construction and operation of the two alternatives are similar. The plant layout for each treatment option would take up approximately the same amount of space, and therefore would displace the same amount of habitat; cause the same amount of land use conversion; and have similar visual, soils/geology/seismicity, grading, hydrology, and cultural resource impacts on a given site. Because the construction time-frames are similar, the same noise, traffic generation, and air quality would be engendered. Construction cost for the two treatment processes would be comparable. Although slightly different quantities and

types of chemicals would be used during the operation of either type of water treatment process, the requirements for handling and disposal of potentially hazardous materials would be, essentially, the same. Water quality is regulated by State and federal policies, and therefore, would be the same for either water treatment process.

A detailed description of the treatment train and processes appears in Appendix B of this EIR, extracted from the Technical Memo developed for Zone 7 by Montgomery Watson as part of the review process for the Altamont Water Treatment Plant project. The following information highlights the main points of that description.

Preliminary design criteria were developed for each of the alternatives to define their respective space requirements and to summarize the engineering advantages and disadvantages of each. It was assumed that the initial size of plant construction would produce up to 24 MGD. Space in the treatment plant layout was allocated for expansion to an ultimate plant capacity of 42 MGD. For both proposed treatment alternatives, the projected minimum site area required would be about 20 buildable acres for flexibility in the water treatment plant layout and for visual and biological buffering.

These two treatment alternatives were recommended because of their ability to handle the variable raw water quality from the South Bay Aqueduct (SBA). The Alameda County Water District has a substantial level of experience treating water from the SBA with ozone. Low-pressure membrane filtration (ultrafiltration) has been demonstrated successfully by the six-month pilot testing study (March through September 1999) conducted by Montgomery Watson and sponsored jointly by Zone 7 and the Alameda County Water District.

HIGH-RATE CONVENTIONAL TREATMENT WITH OZONE

High-rate conventional treatment is appropriate for treating raw water with moderate levels of turbidity and occasional short-term episodes of high turbidity. The combination of clarification and filtration allows a conventional treatment plant to effectively treat waters with changing raw water quality and high turbidity levels. Following clarification, ozone would be used as the primary disinfectant, especially for *Cryptosporidium* and *Giardia* removal, and removal of precursors to disinfection by-products and taste and odor-causing compounds from SBA water.

Because ozone would be used as a primary disinfectant, chlorine would be added only to provide a residual disinfectant in the distribution system. For this reason, a chlorine contact basin is not necessary; however, space for a chlorine contactor was included for this conceptual level of plant design. Following free chlorine contact, ammonia would be added to

form a chloramine residual in the distribution system, to reduce the formation of disinfection by-products. This approach is consistent with other Zone 7 treated water supply processes.

The average sludge production quantities would be close to 2,200 pounds per day dry weight for the initial plant capacity of 24 MGD.

LOW-PRESSURE MEMBRANE FILTRATION

Low-pressure membrane processes such as microfiltration (MF) and ultrafiltration (UF) are able to provide an absolute physical barrier for removal of particulate matter and raw water microorganisms. With the ability of membranes to handle raw waters with variable concentrations of suspended solids, the performance of membrane filtration for removing suspended materials is not dependent on chemical conditioning of the water and direct filtration systems, as is the case with conventional, contact clarification.

Both MF and UF operate in similar pressure ranges, provide similar removal of protozoa such as *Giardia* and *Cryptosporidium*, and operate within the 85 to 95 percent range of production efficiency. For treating SBA water, MF and UF would be capable of removing turbidity and providing an absolute barrier to the passage of *Cryptosporidium*, *Giardia*, and other pathogenic microorganisms. However, other water quality parameters including tastes and odors; disinfection by-products precursor materials; and color, may not be treated effectively with membrane filtration alone. A pre-treatment process, such as high-rate clarification, or a secondary treatment process, such as granular activated carbon adsorption, is necessary to achieve removal of all these compounds.

Depending upon the membrane filtration requirements imposed by the California Department of Health Services, chemical disinfection supplemental to membrane filtration should be needed only for inactivation of viruses and for provision of residual disinfectant in the distribution system. For this reason, a relatively small chlorine contact basin was recommended for installation at the proposed water treatment plant, and space for the basin reserved adjacent to the clearwells. Following free chlorine contact, ammonia would be added to provide a chloramine residual in the distribution system to reduce the formation of disinfection by-products.

The average sludge production quantities would be slightly less than 2,200 pounds per day dry weight for initial plant capacity of 24 MGD, owing to the lower assumed dosage of alum coagulant.

COMPARISON OF TREATMENT TECHNOLOGIES

The advantages of membrane filtration over conventional treatment with ozone include:

- opportunity for minimal chemical addition, including coagulants and disinfectants;
- physical disinfection process without reliance on as many chemical disinfectants;
- reduced potential for disinfection by-product formation;
- no formation of bromate, as would occur with the ozone alternative;
- reduced solids production owing to less reliance on chemical coagulants;
- less operator attention required and lower staffing requirements;
- high finished water quality independent of raw water quality and temperature fluctuation; and
- potential for smaller plant footprint than conventional treatment with ozone processes.

Potential disadvantages of membrane filtration as compared to conventional treatment with ozone include the following:

- lack of removal capabilities for color, total organic carbon, taste- and odor-causing substances or precursors to disinfection by-products without additional pretreatment;
- potentially higher power costs relative to conventional treatment with ozone;
- relatively high costs for membrane replacement estimated near $150,000 per annum; and
- potential for significant noise generation within plant facilities due to air compressors, pneumatic valves, and pumps.

For the conventional treatment with ozone option, the following plant staffing would be expected:

- one plant manager;
- five plant operators;
- two plant maintenance technicians.

The membrane filtration treatment alternative could be operated with as little as 50 percent of the plant staff needed for the conventional treatment option; however, increased capital investments may be necessary to achieve that level of plant automation.

Conceptual design of sludge drying beds for the water treatment plant indicates that four drying beds should be provided for the initial plant design capacity of 24 MGD, with an average annual production of 14 MGD. The number of drying beds would be expanded to six for the ultimate plant capacity of 42 MGD, with an average annual production of 21 MGD. Each of the drying beds would have a total bed area of approximately 16,900 square feet or 0.4 acres. It is assumed that the beds would be capable of dewatering sludge to a solids concentration of 50 percent through the combined actions of decanting, evaporation and percolation. Maximum sludge depths in the beds would be 2.5 feet. Estimated drying time for individual beds is two to three summer months. Thus, it is possible that up to ten months of sludge storage may be accumulated prior to completion of the drying cycle. During the summer, the concentrated sludge (50 percent solids) would be disposed at a public Class III landfill. Truck traffic from the removal and disposal of the partially dried sludge material is anticipated to be an average of one to two truck trips per week, during a six-month dry weather period. The estimated frequency of chemical deliveries and sludge disposal is a function of the treatment process selection and is not likely to vary for the different site alternatives.

2.5 CONVEYANCE ALTERNATIVES

Conveyance facilities would be needed to supply raw water from the South Bay Aqueduct to one of the proposed sites for the Altamont WTP, and transmission facilities (the future Altamont Pipeline) to deliver treated water from the plant to the future Zone 7 transmission pipeline at Vasco Road (the future North Livermore Pipeline). That pipeline would carry water to the existing distribution system on Kitty Hawk Road, to be delivered to the developed areas in north and west Livermore, Dublin and Pleasanton.

B4-A ALIGNMENT

As one option to be examined in a future project (evaluated at a programatic level in this EIR), a new intake structure would be built at Bethany Reservoir, and about 3 miles of water supply conveyance pipeline would be installed from the South Bay Pumping Plant at Bethany Reservoir to the Dyer Canal Backsurge Pool. This would be the future pipeline B4-A, shown in Figure 1-1 and Figure 2-2. This pipeline probably would be 42 to 48 inches in diameter and be approximately parallel to the existing Brushy Creek Pipelines. Other options could include increasing the capacity of the SBA Pumping Station, raising the surge towers on the Brushy Creek Pipelines, lining the Brushy Creek Pipelines, or selecting a different route to the proposed Altamont WTP. These alternatives for conveying raw water between Bethany Reservoir and the Dyer Canal Backsurge Pool are being evaluated in the ongoing Raw Water Conveyance Alternatives Analysis, which will be the subject of a future project-level EIR.

DYER CANAL BACKSURGE POOL INTAKE STRUCTURE AND PUMP STATION

Raw water conveyed to the Dyer Canal Backsurge Pool by way of the future B4-A Alignment (or any alternative alignment) would need to be pumped to the proposed Altamont WTP. An intake structure and pump station would be located at the Backsurge Pool to draw water from the Pool and pump it into the raw water conveyance pipeline between the Pool and the water treatment plant. The intake structure would be a pipeline connection, 42 or 48 inches in diameter, from the side of the Backsurge Pool, followed by a 42- or 48-inch isolation valve (usually buried). A short 42- or 48-inch raw water line would continue to the pump station. The pump station would be a building about 20 feet wide, 30 feet long and 15 feet high near the Backsurge Pool. It would contain the raw water, motor control center, pumps, space for servicing the pumps, and, probably, the water meter. No substantial reconstruction of the existing access road to the Backsurge Pool is anticipated.

RAW WATER PIPELINE: ALTAMONT PASS ROAD ALIGNMENT

The Altamont Pass Road Alignment (APR) for the raw water conveyance pipeline was conceived to follow the rights-of-way of existing roadways, where possible, between the Dyer Canal Backsurge Pool and Laughlin Road Site #3. The raw water pipeline to Laughlin Road Site #3 would extend from the Dyer Canal Backsurge Pool south about 1400 feet to Dyer Road, and would continue in the Dyer Road right-of-way to the intersection of Altamont Pass Road. Remaining in the right-of-way, it would extend west along Altamont Pass Road and Northfront Road to the intersection of Laughlin Road. Continuing north in the Laughlin Road right-of-way, it would connect to the proposed Altamont WTP inlet near the southeast corner of the site. About 37,500 feet of pipeline would be needed to connect the Backsurge Pool to the Altamont WTP at Laughlin Road Site #3.

The raw water pipeline to Dyer Road Site #1 would connect the Dyer Canal Backsurge Pool to the raw water pump station and then extend south approximately parallel to the South Bay Aqueduct about 1400 feet to the inlet of the proposed water treatment plant, probably without entering Dyer Road. The raw water pipeline to Dyer Road Site #5 would connect the Backsurge Pool to the raw water pump station, extend south approximately parallel to the South Bay Aqueduct and then west across Dyer Road near the south east corner of the site, a distance of about 1500 feet, where it would enter the proposed water treatment plant.

RAW WATER PIPELINE: BRUSHY PEAK ALIGNMENT

The Brushy Peak alignment for a raw water pipeline was identified in the Zone 7 Treated Water Facilities Master Plan as a potential conveyance alignment to Laughlin Road Site #3. A high lift pump station would be needed to boost the water over a maximum elevation of approximately 1,100 feet above sea level for each alternative water treatment plant if this route were selected. This alignment would cut through East Bay Regional Parks land and Livermore Area Regional Parks District land, winding through undeveloped valleys across the eastern and southern faces of Brushy Peak. The technical analyses revealed that the alignment had several unfavorable aspects associated with it. These included the large pumping costs to lift raw or treated water an additional 260 feet over the ridge west of Dyer Road, the need for a permanent access road parallel to the pipeline, the visual impact of the road on the Brushy Peak viewshed, and the fragmentation of San Joaquin kit fox habitat that would be caused by the road. This pipeline would be the most expensive to construct, and would involve impacts to park lands that would be difficult to mitigate to a less than significant level. On the basis that the route was severely constrained, both hydraulically and environmentally, Zone 7 withdrew the alignment from consideration.

FUTURE TREATED WATER PIPELINES

As indicated under Future Related Projects in Section 1, Introduction, of this EIR, the future Altamont Pipeline would carry treated water to the future North Livermore Pipeline (see below). These two pipelines are not part of the proposed project, but were examined at a programmatic level to provide the public with the context in which the proposed project would be constructed. They will be addressed in future project-level EIRs.

Altamont Pipeline

Initially, two alignments for the future Altamont Pipeline were identified in the Zone 7 Treated Water Facilities Master Plan as potential treated water conveyance alternatives: the Altamont Pass Road Alignment (APR), previously discussed for the raw water conveyance alignment to Laughlin Road Site #3 (shown on Figure 1-1 and Figure 2-2), and the Brushy Peak Alignment. Subsequently, the Brushy Peak alignment was eliminated for environmental and hydraulic reasons, as discussed previously for the Brushy Peak raw water conveyance alignment to Laughlin Road Site #3.

The future Altamont Pipeline would carry treated water from the selected water treatment plant location along existing roadways or rights-of-way to connect with the future North Livermore Pipeline at Vasco Road (shown on Figure 1-1 and Figure 2-2). About 34,000 feet

of pipeline would be needed to connect the Altamont WTP to the North Livermore Pipeline, if Dyer Road Sites #1 or #5 were selected as the location for the water treatment plant. The alignment for the future treated water pipeline would be very similar to that previously described for the proposed raw water line to Laughlin Road Site #3. From either of the Dyer Road sites, the future treated water pipeline would leave the clearwell (treated water reservoir) at the proposed water treatment plant (a treated water pump station would be located at the clearwell, if needed). The pipeline would continue south in Dyer Road to the intersection of Altamont Pass Road. Remaining in the right-of-way, it would extend west along Altamont Pass Road and Northfront Road to the intersection of Laughlin Road. Continuing north in the Laughlin Road right-of-way for approximately 4,400 feet, it would turn west to cross undeveloped land to connect with Zone 7's transmission and distribution system through the future North Livermore Pipeline at Vasco Road.

An optional alignment, previously identified as the Altamont Pass Road Two (APR-2) Alignment for the proposed raw water line to Laughlin Road Site #3, also could decrease the total length of the future treated water pipeline by about twelve percent. Approximately 4,000 feet of pipe could be saved by angling north from Altamont Pass Road at the intersection of Greenville Road, and extending the alignment across the open undeveloped area to Vasco Road, as shown on Figure 1-1 and Figure 2-2.

If Laughlin Road Site #3 were selected, about 8,100 feet of future treated water pipeline would be needed. The future treated water pipeline would leave the clearwell at the proposed water treatment plant and continue south in the Laughlin Road right-of-way to a point approximately 4,400 feet north of the Laughlin Road/Northfront Road intersection. It would turn west to cross undeveloped land to connect with Zone 7's future transmission and distribution at Vasco Road.

North Livermore Pipeline

The future North Livermore Pipeline (treated water) would connect the future Altamont Pipeline from Vasco Road through the North Livermore service area to the existing transmission and distribution pipelines at the intersection of Airway Boulevard and Kitty Hawk Road. The exact location of the future North Livermore Pipeline route has not been selected, so a representative corridor is shown on Figure 1-1 and Figure 2-2. This is not the only possible corridor, but is typical of the routes that will be studied in a future project-level EIR on the pipeline alignment. Whatever future route is selected, it would be identical for each of the proposed alternative water treatment plant sites. With the exception of a short segment at the north end of the Isabel Avenue right-of-way, the future North Livermore Pipeline corridor would be in existing roads or the rights-of-way for future roads.

The representative corridor shown for the future North Livermore Pipeline would begin at the connection with the future Altamont Pipeline at Vasco Road. It would continue west along Dalton Avenue and jog north on Ames Street to Raymond Boulevard where it would turn west. At the intersection of Raymond Boulevard and the Lorraine Road right-of-way, it would turn south until it reached the intersection with Hartford Avenue. At Hartford Avenue the corridor would turn west again until it reached the intersection with North Livermore Avenue. There it would jog south to the intersection with the Hartman Road right-of-way, and turn west to the Isabel Parkway right-of-way. It would extend south to I-580. The corridor would cross I-580 in the planned interchange at Isabel Parkway and turn west in Airway Boulevard to connect to the Zone 7 distribution system at the intersection of Airway Boulevard and Kitty Hawk Road.

2.6 REQUIRED APPROVALS

ZONE 7 OF ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT BOARD

Following the public comment period on the Draft EIR for the Altamont WTP, the comments will be collated, responses will be formulated, appropriate alterations made to the document, and the Final EIR will be prepared for consideration by the Zone 7 Board. If the document is found to be complete, the Zone 7 Board would certify it as such. If the Board has further questions regarding the document, they would be answered as part of the certification process. Findings regarding the EIR and the Mitigation Monitoring Program would be made at that time. Once the EIR is certified, the Board may act on the question of project approval. This project approval (or disapproval) action may follow EIR certification directly, or may take place at a subsequent Board Meeting. If the project is approved, the design of the project must adhere to Alameda County Building Code requirements and any agreements made with federal or State agencies. The agreements may be worked out contemporaneously with development of the design.

Alameda County uses a modified version of the *California Building Code* (CBC, Title 24, Part 2) to regulate the safety of public buildings and a large percentage of private buildings. This Building Code is commonly used by Zone 7. The California Building Code is based on the current Uniform Building Code, but contains additions, amendments and repeals that are specific to building conditions and structural requirements in the State of California.[7] Local building codes, such as that used by Alameda County and Zone 7, are permitted to be more restrictive than Title 24, but are required to be no less restrictive. Provisions of this Building Code would be used for the proposed Altamont Water Treatment Plant, although more stringent requirements may be set by Zone 7.

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)

Regulations pertaining to stormwater discharges associated with construction activity were issued by the U.S. Environmental Protection Agency in 1990. The regulations prevent the pollution of storm water through the control of erosion, sedimentation and toxic or hazardous materials at construction sites. These regulations are administered by the Regional Water Quality Control Boards through the National Pollution Discharge Elimination System (NPDES) Program.

Pollution reduction design is required as part of the permanent drainage system for the post-construction period as well as for the construction phases of a project. Certain categories of industrial facilities are required to obtain NPDES permits for operation of the facilities. A permit is required for construction projects such as pipeline installation, and development projects that are greater than 5 acres in extent, thus applying to the various water treatment plant potential sites. A Storm Water Pollution Prevention Plan (SWPPP) is required that identifies the sources of sediment and other pollutants, and ensures the reduction of sediment and other pollutants in the storm water discharged from a construction site. A monitoring program is required to aid the implementation of, and assure compliance with, the Pollution Prevention Plan. These subjects are discussed further in Sections 3.2.3, Hydrology, and 3.2.4, Water Quality, of this EIR.

CALIFORNIA DEPARTMENT OF FISH AND GAME/U.S. ARMY CORPS OF ENGINEERS

Agreements with the California Department of Fish and Game would be required for any loss of endangered species habitat on the selected site. The U.S. Army Corps of Engineers would need to issue a Section 404 Permit under the Clean Water Act, and Section 10 Permit under the Rivers and Harbors Acts for any alterations to wetlands such as the vernal ponds on Dyer Road Site #1. These subjects are discussed further in Section 3.2.1, Biological Resources, of this EIR.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Because the construction activities related to the proposed Altamont WTP Project would involve disturbing land areas greater than four acres, as defined for the purposes of the California Environmental Quality Act, the Bay Area Air Quality Management District's Enhanced Control Measures would be applicable to construction of the proposed project. Because of the proximity of existing residences to each of the alternative sites for the Altamont WTP, the Bay Area Air Quality Management District's Optional Control Measures would be

applicable to construction of the project. These subjects are discussed further in Section 3.2.6, Air Quality, of this EIR.

RIGHT-OF-WAY ENCROACHMENT PERMITS

Encroachment permits would be required by each agency through whose jurisdiction Zone 7 would need construction access or through which the raw water pipelines for the Altamont WTP would pass. These include (1) the California Department of Water Resources, which has jurisdiction over the SBA access roads, (2) Alameda County Public Works Agency, which has jurisdiction over county roads such as Dyer Road, Altamont Pass Road, and portions of Laughlin Road, and (3) the City of Livermore, which has jurisdiction over Northfront Road and portions of Laughlin Road.

NOTES - Project Description

1. Zone 7 Water Agency, *Water Supply Planning Program, Draft Program Environmental Impact Report,* SCH #1998041040, January 1999, p. 2-1, prepared by Environmental Science Associates.

2. Water Transfer Associates, *Water Supply Planning Study*, January 1999, prepared for Zone 7.

3. Zone 7 Water Agency, *Fiscal Year 2000/01 Water Supply System Five-Year Capital Improvement Program*, August 1999.

4. Camp Dresser McKee, *Treated Water Facilities Master Plan – Final Report*, January 2000, prepared for Zone 7 Alameda County Flood Control and Water Conservation District.

5. Camp Dresser McKee, *Water Treatment Plant Expansion Master Plan – Task IV Technical Memorandum*, June 1999, prepared for Zone 7 Alameda County Flood Control and Water Conservation District.

6. Camp Dresser McKee, *Treated Water Facilities Master Plan - Draft Report*, October 1999, prepared for Zone 7 Alameda County Flood Control and Water Conservation District, Fig. 6-1.

7. International Conference of Building Officials, *Uniform Building Code*, Volumes 1, 2 & 3; Chapter 16, Structural Forces (earthquake provisions); Chapter 18, Foundations and Retaining Walls; Chapter A33, Excavation and Grading, Whittier CA, 1994.

3. ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

This section of the Draft EIR presents the environmental analysis for all environmental factors that may be significantly affected by the proposed Altamont WTP. The environmental analysis has been prepared consistent with Sections 15125 and 15126 of the CEQA Guidelines. For each issue, the following information is presented:

Setting – describes existing baseline conditions including the environmental setting and regulatory background.

Impact Assessment – evaluates how the proposed project would affect baseline conditions.

Mitigation Measures – identifies ways to eliminate or reduce impacts that are considered significant and adverse.

CLASSIFICATION OF IMPACTS

The impact and mitigation portion for each environmental topic includes summary impact statements that highlight the environmental consequences of the proposed project. An explanation of each impact and an analysis of its significance follows each summary impact statement. In the summary impact statement, a level of significance is determined and reported. Conclusions of significance are defined as follows:

Significant (S) impacts include effects that exceed established or defined thresholds. For example, siting of the Altamont WTP and associated infrastructure on any of the three sites would remove grassland foraging habitat of the State and Federally Endangered San Joaquin kit fox, and would be considered a significant impact.

Potentially Significant (PS) impacts include effects that may be significant, but there is insufficient information to verify the magnitude of the effect. For example, placement of the Altamont WTP on any of the three potential sites would place the facility within the long-range viewshed of Brushy Peak, an important regional recreational resource. Mitigation measures would reduce the visual impact of new structures. This EIR adopts a conservative approach and assumes that there would be a potential for a significant effect, in the absence of clear evidence otherwise.

Insignificant (I) impacts include effects that are noticeable but do not exceed established or defined thresholds. For example, regional air emissions caused by

project operation would not exceed the Bay Area Air Quality Management District's significance thresholds for reactive organic gases, oxides of nitrogen and particulate matter, so that the air quality impact of regional emissions would be considered insignificant.

Significance criteria are defined for each environmental issue in this section based on existing standards of Alameda County, regional entities such as the Bay Area Air Quality Management District and Regional Water Quality Control Board, or professional judgement. These criteria are intended to explain to the reader the basis for characterizing the significance of an impact.

For each impact identified as being significantly adverse, the EIR suggests mitigation measures to reduce or eliminate the negative effect. If the mitigation measures would successfully reduce the impact to insignificance, this is stated in the EIR. If, however, the mitigation measures would not successfully minimize these effects to insignificance, the EIR classifies these impacts as "unavoidable significant adverse impacts."

FORMAT FOR PRESENTATION OF IMPACTS

Each summary impact statement along with the degree of impact (S, PS, or I) is numbered and presented in italics. After discussion of significant impacts, mitigation measures are proposed. The residual level of impact following the adoption of the mitigation measures is stated after the discussion of the mitigation measure. Mitigation measures are either sufficient to reduce the significant effect to insignificant levels or inadequate and would leave the impact significant and unavoidable. Each of the mitigation measures is given a number and a title. The numbering system for mitigation measures links the measures to the impact they address. For example, Mitigation Measure 3.2.2-2 would be the second of two measures identified to address Impact 3.2.2.

CUMULATIVE DEVELOPMENT

In order to fully understand the environmental implications of a proposed project, CEQA requires that the project be examined for its individual effects on the existing environment as well as its cumulative effects in conjunction with other reasonably foreseeable development projects. These cumulative impacts refer to two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative development is discussed in Section 8 of this EIR.

3.1 SOCIAL/CULTURAL ISSUES

3.1.1 LAND USE

Introduction

This section describes existing land use characteristics in and around the three potential Altamont Water Treatment Plant (WTP) sites, the changes in land use proposed by the project, and suggested mitigation measures to address potentially significant adverse impacts, if any. Site reconnaissance, the Alameda County General Plan, the East County Area Plan (ECAP), and other relevant plans and policies of the City of Livermore and Alameda County serve as the basis for this land use evaluation.

The vast majority of Alameda County land in the area known as "East County" is unincorporated and consists of extensive hills that frame the urbanizing Livermore-Amador Valley. Non-urbanized land uses within this area are rural residential, agriculture (mostly grazing with some irrigated cultivation in South Livermore Valley and Mountain House), regional parks and watershed lands, and special natural resource land uses such as sand and gravel quarries and windfarms. These non-urbanized lands, when added to environmentally sensitive lands (i.e., critical habitat and sensitive viewsheds) and lands constrained by potentially hazardous conditions (i.e., steep topography, landslide, flood and fault zones), comprise the East County's regionally significant open space, or those lands that have an open and natural character and are large enough to be important on an area-wide level.[1]

Zone 7, the regional water supplier and agency, is not subject to the land use and zoning designations of local jurisdictions for projects involving public utility uses. However, it is typical for a water supplier to work with the host jurisdiction(s) and the neighboring community during project planning and to conform to local land use plans and policies to the extent possible.

SETTING

Regional Land Use[2]

Rural Residential

There are several areas of very low density residential development (generally on parcels of between 1 and 5 acres) scattered throughout the unincorporated East County. These areas are found south of the City of Livermore, along Foothill Road between the City of Pleasanton and Sunol, and along Kilkare Road north of Sunol. The Dyer Road residential area is located west of Dyer Road Site #1 and south of Dyer Road Site #5 (see Figure 2-2 in Section 2, Project Description). The town of Sunol, with a population of about 500, is a small rural residential community at the eastern end of Niles Canyon. Except for Sunol, these areas do not receive public sewer or water service; instead, individual residences rely on septic systems and wells. Limited agriculture or agriculture-related activities may occur on some of these parcels.

Agriculture

Development on agricultural parcels typically consists of one single-family dwelling and uses accessory to the agricultural operation on the parcel. These accessory uses include farm buildings, such as barns, stables, corrals, and coops; and buildings and stands for packing and selling products raised on the premises. Existing zoning regulations allow, as a conditional use, additional dwellings for persons employed in the agricultural use of the subject property and their families, and/or living quarters for farm laborers. Other uses such as wineries, recreational facilities, public utilities, sanitary landfills and wind turbines for generating electricity, can also be found in the agricultural area.

There are relatively few very small parcels in agricultural areas. However, there are clusters of parcels under 40 acres, subdivided prior to current zoning. The largest concentration is along Tesla Road. Smaller groupings can be found north and south of I-580 near the San Joaquin County border (Midway Road), along Mines Road, east of Calaveras Road near the Santa Clara County border (Welch Creek), northeast of the intersection of Vallecitos Road and I-680 (Little Valley), along Doolan Canyon Road, along Collier Canyon Road, and generally scattered throughout the area north of the City of Livermore (Dyer Road and north of May School Road on Bel Roma Road).

Large parcel agriculture is the predominant land use in the unincorporated portion of the East County. According the 1987 Census of Agriculture, the size of the average farm in Alameda

County is 349 acres. A wide variety of agricultural activities takes place in this area, including grazing, viticulture, dryland farming, and irrigated agriculture.

Public Lands

Regional Parks

The East Bay Regional Park District owns or manages nearly 20,000 acres of regional park land in the East County and several additions to the park system are under consideration. The regional park nearest the three potential Altamont WTP sites is Brushy Peak Regional Preserve (Figure 2-2).

Watershed Lands

The San Francisco Water Department (SFWD) owns approximately 67,900 acres of watershed lands in eastern Alameda County and adjacent Santa Clara County (about half of this acreage overlaps with the Sunol and Ohlone Regional Parks). The 40,000 acres of watershed located in the East County comprises much of Sunol Valley and surrounds the San Antonio Reservoir south of Vallecitos Road and Calaveras Reservoir on the Santa Clara County line. These lands were acquired between 1870 and 1900, and since 1930 they have been fenced to prevent trespass and health and safety hazards. Although some of the land is used for grazing, allowed by permit, the watershed lands have generally retained high biological resource quality. Small areas of water management land under State ownership in eastern Alameda County include the Bethany Reservoir and the South Bay Aqueduct Corridor.

Special Natural Resource Land Uses

Quarries

Major sand and gravel resources are located along the arroyos of the Livermore-Amador and Sunol Valleys. Hard rock is found in the Apperson Ridge area. The State Mining and Geology Board, in a January 1987 report incorporated into the California Administrative Code, designated over 5,800 acres in the planning area as "Regionally Significant Construction Aggregate Resource Areas." These include 3,128 acres between Pleasanton and Livermore, 494 acres along Arroyo del Valle southwest of Livermore, 629 acres along Arroyo Mocho southeast of Livermore, 990 acres in the Sunol Valley, and 600 acres on Apperson Ridge. Surface Mining Permits have been granted to govern the extraction of these resources

as well as reclamation of the sites. None of the three potential Altamont WTP sites are located in these designated resource areas.

Windfarms

There are extensive wind turbine fields in the area north and south of the Altamont Pass near the boundary with San Joaquin County. The Altamont Pass area, designated by the California Energy Commission as the Altamont Pass Wind Resource Area, straddles both Alameda and Contra Costa Counties. It is the most developed wind resource area in the world and has approximately 7,000 wind turbines (of which over 5,800 are within Alameda County) producing 1,100 million kilowatt hours of electricity annually for distribution by Pacific Gas and Electric (PG&E). This annual energy output is enough to supply the electrical need of all residences in a city of approximately 350,000 people. Of the 103 Conditional Use Permits for windfarms approved by the County, 75 are currently active. The County's windfarms are spread over approximately 78 square miles, but the turbines and ancillary electric power lines, access roadways, and maintenance facilities occupy a relatively small proportion of the total land area (10 percent or less, typically, for each permit). The remainder of the land continues to be used for agricultural production (dry grain farming and cattle grazing), or as open space. Both Dyer Road Site #5 and Dyer Road Site #1 are located within view of active windfarming areas, while neither Laughlin Road Site #3 nor Altamont Pass Road Site #1 are within view of, or located within, areas designated as potential windfarming areas.

Landfills

Two landfills located in the northeastern quadrant of the East County handle most of the County's solid waste. These are the 2,170-acre Altamont Sanitary landfill site, which includes the 225-acre fill area and the 1,020-acre expansion area, and the 644-acre Vasco Road landfill, which includes the 226-acre fill area and the 86-acre expansion area.

Other Open Space

Environmentally Sensitive Lands

Environmentally sensitive lands are comprised of critical biological habitat, unique natural features and important viewsheds, ridgelines and community buffers that establish the open space character of a place. Usually, these areas are vulnerable to relatively minor levels of disturbance. Those lands that are not already included in the public domain as parks,

watershed lands, and preserves are protected by environmental regulation and local government policies to reduce disturbance.

Hazard Zones

Hazard zones are lands that could jeopardize the public health, safety and welfare if they are developed. Hazardous zones include flood-prone areas and geologically unstable areas (e.g., landslide areas, seismically vulnerable areas, and areas of steep topography). Development is usually controlled or precluded in such areas by State and local regulations and policies. See further discussion of Hazard Zones in relation to potential development of the Altamont WTP in Section 3.2.2, Soils, Geology and Seismicity.

Site-Specific Characteristics

Laughlin Road Site #3

Laughlin Road Site #3 is designated as large parcel agriculture by the ECAP. The eastern portion of the site is within the North Livermore General Plan Amendment (GPA) planning study area and is within an area designated as a Rural Management Area by the GPA. This designation generally provides for hillside conservation and general agriculture, as opposed to urban development, and allows a minimum parcel size of 100 acres and a maximum of one single-family residence per parcel. This designation provides for low-intensity agriculture, agriculture processing and support facilities, secondary residential units, visitor-serving commercial facilities, quarries, windfarms and solid waste landfills, and requires buffer zones within the developed parcel boundaries to protect designated agricultural areas abutting the parcel. This site does not have designated prime agricultural soils but is under Williamson Act contract[3] (see further discussion of the Williamson Act under the Relevant Plans and Policies section of this chapter). Access to this site is directly from Laughlin Road, a two-lane, low-use roadway. The western portion of the site is located within the Alquist-Priolo Earthquake Fault Zone associated with the Greenville Fault (see further discussion in Section 3.2.2, Soils, Geology and Seismicity). The Alquist-Priolo Earthquake Fault Zone requires that a fault location study be implemented prior to development, and that appropriate setbacks from active fault traces be incorporated into project design. Given the size of the site, it is anticipated that facilities could be sited outside the Alquist-Priolo Earthquake Fault Zone, thereby reducing potential constraints. The site is currently used as open rangeland for grazing.

Dyer Road Site #5

Dyer Road Site #5 is located in an unincorporated portion of Alameda County that is designated as a "large parcel agriculture area" and as a "wind resource area" in the ECAP. Access to this site is via Dyer Road, a two-lane, low-use roadway that is subject to seasonal flooding at the railroad undercrossing, and terminates a few hundred yards north of the site. The site does not include designated prime agricultural soils, and is not under Williamson Act contract.[4] Current land use is as open rangeland for grazing.

Dyer Road Site #1

Dyer Road Site #1 also is located in an unincorporated portion of Alameda County that is designated as a "large parcel agriculture area" and as a "wind resource area" in the ECAP. Access to this site is directly from Dyer Road, a two-lane, low-use roadway that is subject to seasonal flooding at the railroad undercrossing, and terminates a few hundred yards north of the site. The entire site is open rangeland used for grazing. The site does not include designated prime agricultural soils, but is under Williamson Act contract (see further discussion of the Williamson Act under Relevant Plans and Policies, later in this section).

Dyer Road Site #1 has been identified as mitigation acreage for San Joaquin kit fox in the EIR for the Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II.[5] Utilization of this site as mitigation is identified as a condition of approval for the proposed project. The EIR has been certified, and the project approved, by the Alameda County Board of Supervisors. This project has been successfully challenged in court, and both Alameda County and the applicant are considering appeal options. As such, this condition of approval regarding mitigation acreage for kit fox is likely to be required for any Altamont Landfill expansion project. In order to use this site for the Altamont WTP, the following would likely be required: (1) identification and dedication of a similar or improved mitigation site; (2) negotiations with Waste Management Inc. and Alameda County regarding alteration of the Conditional Use Permit; and (3) Section 7 of the Federal Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) to approve the new mitigation site(s) and accept the WTP use at Dyer Road Site #1. In order to secure these agreements, it is likely that Zone 7 would have to demonstrate to the USFWS and the Alameda County Planning Department that other available WTP sites are not feasible, including expansion at existing water treatment plant sites. Based upon these implementation conditions, land use constraints associated with this site are considered moderate. However, biological resource management requirements for this site are considered high, and are discussed further in Section 3.2.1, Biological Resources.

Relevant Policies and Regulations

Alameda County General Plan

All three potential Altamont WTP sites are within the Altamont Hills, which is a valuable open space resource for Alameda County. The Open Space Element of the Alameda County General Plan is applicable to the proposed project. This Element contains the following principle:

> Large, contiguous areas of open space, protected from intrusion by development, should be preserved. Examples would be the San Francisco Bay wetlands, the East Bay Hills, and the hills surrounding the Livermore-Amador Valley.

The Scenic Route Element of the Alameda County General Plan designates Altamont Pass Road, I-580 and part of Vasco Road as Scenic Routes within the Altamont Hills subarea of Alameda County. Scenic qualities and natural scenic areas adjacent to, and visible from, scenic routes are to be preserved and enhanced under this designation.

East County Area Plan

The ECAP also addresses applicable policies concerning the Altamont Hills:

- Policy 15: The County shall phase development to minimize premature loss of agricultural land.
- Policy 56: The County shall preserve open space areas for the protection of public health and safety… and protection of natural resources.
- Policy 58: The County shall only approve open space, park, recreational, agricultural, low-intensity institutional, limited infrastructure, and other similar and compatible low-intensity uses outside the Urban Growth Boundary.[6]

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, offer tax incentives for agricultural land preservation by ensuring that land will be assessed for its agricultural productivity rather than its highest and best uses. Contracts run for a period of

ten years, and are automatically renewed each year unless the property owner files for non-renewal. Beginning the next contract anniversary date, the contract winds down over its remaining term, which typically runs nine years. After non-renewal has been filed, a landowner may petition the city/county in whose jurisdiction the land is located for early cancellation of the contract.

Under the terms of the Act, use of the lands under contract must be limited to agricultural and "compatible" uses. Compatible uses specifically include recreational and open space uses. Proposed WTP facilities could be considered compatible, although this would require a request of non-renewal and early cancellation of the contract, and a determination of compatibility by the Alameda County Planning Commission. The Williamson Act has specific provisions for acquisition of contracted lands for public improvements. Article 6 of the Williamson Act (Government Code Sections 51290-51295, as amended by Senate Bill 1534 in 1994) provides that a public entity may acquire land within an agricultural preserve for public improvement through eminent domain or in lieu of eminent domain, and that this action terminates the contract. Specific provisions define procedures that the agency must follow in notifying the Director of the Department of Conservation, conditions under which a public improvement may not be located within a preserve, and public improvements that are exempt from these conditions.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The CEQA Guidelines suggest that the proposed project would result in significant land use impacts if it would:

- substantially and adversely change the character of the area;
- disrupt or divide the physical arrangement of established land uses within the project vicinity; or
- develop land uses substantially incompatible with surrounding existing land uses.

Impact 3.1.1-1

Development of the Altamont WTP on Laughlin Road Site #3 may encounter land use restrictions because the western portion of the site is located in an Alquist-Priolo Earthquake Fault Zone. (PS)

The Alquist-Priolo Earthquake Fault Zone requires that a fault location study be implemented prior to development, and that appropriate setbacks a minimum of 50 feet from active fault traces be incorporated into project design. Given the size of the site, it is anticipated that facilities would be sited outside the Alquist-Priolo Earthquake Fault Zone, thereby avoiding potential constraints.

Implementation of the following mitigation measure, proposed as part of the project, would reduce this impact to a level of insignificance.

Mitigation Measure 3.1.1-1

Configure the Altamont WTP on this site specifically to avoid locating facilities within the Alquist-Priolo Earthquake Fault Zone. Show the boundary of the fault zone on construction drawings and specifications. Follow required building design guidelines for seismic safety (see Impacts and Mitigation Measures 3.2.2-1 and 3.2.2-2 in Section 3.2.2, Soils, Geology, and Seismicity).

Mitigates:	Impact 3.1.1-1 (I)
Implementation:	Include fault zone boundary and required building design guidelines for seismic safety in construction drawings and specifications prior to approval of final project plans and issuance of building permits.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.1.1-2

Development of the Altamont WTP on the Dyer Road Site #1 may encounter restrictions because of wetlands/vernal ponds on the site, and because the site has been previously identified as mitigation acreage for San Joaquin kit fox in a prior certified EIR regarding landfill expansion. (PS)

Dyer Road Site #1 has been identified as mitigation acreage for San Joaquin kit fox in the EIR for the Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II. Utilization of this site as mitigation is identified as a condition of approval for the proposed project. Implementation of the following mitigation measure as part of the proposed project would reduce this impact to a level of insignificance.

Mitigation Measure 3.1.1-2

Identify and dedicate a similar site acceptable to the U.S. Fish and Wildlife Service to replace the use of Dyer Road Site #1 as a mitigation site for the landfill project. Alternatively, Zone 7 would contribute in lieu fees to the U.S. Fish and Wildlife Service Mitigation Bank for development projects in the Livermore-Amador Valley.

Mitigates:	Impact 3.1.1-2 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans and issuance of building permits.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.1.1-3

Development of the Altamont WTP on Laughlin Road Site #3 would not conflict with existing nearby use at the BFI landfill, but may conflict with nearby future planned residential development in the North Livermore area. (PS)

.

The BFI landfill is located on the hills north of this site, but land use conflicts with this type of use are not anticipated. Conflicts with residential land uses are currently limited at this site; however, development of the North Livermore GPA would reduce existing buffers between WTP facilities and residential areas, and could result in potential land use conflicts with residential uses. Laughlin Road Site #3 is located just within the easternmost portion of the North Livermore Specific Plan study area, in Zone D, designated as Large Parcel Agriculture/Resource Management Area.[7] As this site is located at higher elevations than proposed urban development areas to the south, the potential for conflicts is considered low. Overall, land use conflicts associated with this site are considered low because of its topographic separation from future planned residential development, and the potential for berming and screening of the plant from adjacent land uses. Implementation of the following mitigation measure, recommended by the EIR consultant, would reduce this impact to a level of insignificance.

Mitigation Measure 3.1.1-3

Grading should be sensitive to the visual characteristics of the area to complement or enhance the natural contours of the surrounding landscape and to preserve or enhance existing vegetation as much as possible. Vegetation may also be added to screen or soften the effects of grading. Features such as drainage improvements on cut and fill slopes should be designed to be as invisible as possible. Grading for access roads to

proposed structures (necessary for Laughlin Road Site #3) is necessary because of steep slopes and is also necessary for grading of the chosen site for the structure itself.

Mitigates:	Impact 3.1.1-3 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.1.1-4

Development of the Altamont WTP on any one of the three sites would be compatible with existing large parcel agriculture land use designation and Williamson Act contracts. (I)

As noted earlier in this section, the Williamson Act has specific provisions for acquisition of contracted lands for public improvements. Article 6 of the Williamson Act (Government Code Sections 51290-51295, as amended by Senate Bill 1534 in 1994) provides that a public entity may acquire land within an agricultural preserve for public improvement through eminent domain or in lieu of eminent domain, and that this action terminates the contract. Specific provisions define procedures that the agency must follow in notifying the Director of the Department of Conservation, conditions under which a public improvement may not be located within a preserve, and public improvements that are exempt from these conditions. Because of these provisions, it is not anticipated that Williamson Act contracts at any of the three potential sites would prevent their selection as an Altamont WTP site.

Mitigation Measure 3.1.1-4

None required. (I)

NOTES - Land Use

1. Alameda County Planning Department, *East County Area Plan Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

2. Alameda County Planning Department, *East County Area Plan Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

3. Alameda County Planning Department, facsimile, EIP Associates, August 16, 2000.

4. Alameda County Planning Department, facsimile, EIP Associates, August 16, 2000.

5. Lanphier & Associates and SWA Group, *North Livermore Specific Plan DEIR*—Part 1, Volumes I and III, and *Resource Conservation Program Management Practices Handbook,* April 2000.

6. All three potential Altamont WTP sites are outside the Urban Growth Boundary as delineated in Figure 3 of the East County Area Plan, Volume 1—Goals, Policies and Programs, adopted May 5, 1994.

7. Lanphier & Associates and SWA Group, *North Livermore Specific Plan DEIR*—Volume 1, Figures 1.2 and 1.4, pp. iii-v, April 2000.

3.1.2 VISUAL QUALITY

Introduction

This section documents the existing visual characteristics and community character surrounding the three potential Altamont Water Treatment Plant (WTP) sites. This character is defined in terms of the development pattern of the surrounding environment (general massing, height, and scale of any buildings in the three site vicinities); the appearance and lot coverage of adjacent parcels and structures; and views of surrounding settings and physical landmarks. Changes to the three potential Altamont WTP sites are evaluated and portrayed using photographs of existing conditions and corresponding computer-generated visual simulations. The photos and simulations are grouped at the end of the Visual Quality Section, together with location maps and line-of-sight profiles, for ease of comparison. The evaluation of the simulations is discussed under Impacts and Mitigation Measures in this section of the EIR. Site reconnaissance, the East County Area Plan (ECAP), the North Livermore Specific Plan, and the City of Livermore General Plan (Scenic Route Element) serve as the basis for this visual quality evaluation.

SETTING

Regional Visual Character[1]

The visual impression of the Alameda County land area known as "East County" is that of an expansive flat valley floor surrounded by rolling hills rising to ridgelines (see Figure 1-1). The East County Planning Area extends from the Pleasanton/Dublin ridgeline in the west to the San Joaquin County line in the east, and from the Contra Costa County line in the north to the Santa Clara County line in the south. The valley is edged with moderately steep rolling hills covered with annual grasslands, oak woodlands and mixed chaparral. To the north, Mount Diablo in Contra Costa County rises to an elevation of 3,847 feet above sea level, standing out as a dominant, but distant, background feature on clear days. Pleasanton Ridge is a major landform defining the western edge of the Livermore-Amador Valley. This ridge is relatively steep, heavily wooded, and predominantly undeveloped. Along the southern edge of the East County Planning Area, steep, east-facing slopes of north-south trending ridges are also heavily wooded. To the east, the hills of the Altamont Range are moderately sloped, covered with annual grasses and studded with oaks along drainages. Brushy Peak (Figure 1-1), rising to 1,702 feet above sea level, is the highest point in the northeast corner of the Planning Area.

The appearance of the East County's natural features changes with the season. In spring, grassy hills throughout the planning area are green and dotted with wildflowers. In early summer, green slopes turn gold and brown. Dark green oaks stand out against golden grass-covered hills. Winter rains return the hills to green.

With the exception of the vineyards in the South Livermore Valley and some row crops and irrigated pasture in the Mountain House subarea, there is little irrigated agriculture in the planning area. Approximately 200,000 acres of the Valley's grasslands are dedicated to range pasture, while just over 11,000 acres are dry-farmed. In summer, the coloration of these acres renders them indistinguishable from the annual grasslands prevalent in the planning area.

Development in the unincorporated East County consists predominantly of low-intensity uses such as scattered residences and farming- or ranching-related structures. Several prominent structural and industrial features punctuate the natural landscape of the East County.[2] The sand and gravel quarries and associated aggregate plants in the Sunol and South Livermore subareas are visually imposing. Wind turbines stand out against the hills and skyline along the Altamont Range. Electric transmission lines traverse the landscape in various locations.

Two major interstate highways pass through the East County. I-580 runs east-west through the northern portion of East County, providing panoramic views of much of the planning area. I-680 runs generally north-south from the Contra Costa County border, through the cities of Dublin and Pleasanton, and curves to the west, passing through the Vargas Plateau and into the City of Fremont. Both are designated scenic routes.

Altamont Hills Characteristics

This subarea, which contains the three study sites, is characterized by the complex of ridges and drainages that form the Altamont Range. Visually, the Altamont Range merges with the Mount Hamilton Range to the south and the Mount Diablo Range to the north to form the eastern "rim" of the Livermore-Amador Valley bowl, and the backdrop to many views from the valley floor. The topography features undulating grass-covered slopes rising to rounded peaks and prominent ridgelines silhouetted against the sky. Brushy Peak, named for its evergreen-covered summit, is the single natural feature that distinguishes itself from the rest of the Altamont Range, because the woody vegetation persists in contrast to the surrounding grassland throughout the year.

Equally important in defining the character of this subarea are the wind turbines along the ridgetops of the Altamont Range. Located to take advantage of the high winds in this area, hundreds of turbines can be seen from nearly all approaches to the subarea. They also can be seen silhouetted against the sky from most vantage points within the valley. Narrow graded access roads leading to wind turbines are visible as brown ribbons against the green hills during the winter and spring but virtually disappear when the hills turn gold and brown in the summer.

Highway I-580, a designated Scenic Route, traverses this subarea, passing through the valley and over the Altamont Range through the Altamont Pass. As the principal east-west thoroughfare into and out of the valley, I-580 over the Altamont Pass serves as a gateway to the East County, providing a sweeping view of the entire valley. For travelers heading east, the hills provide a definite boundary between the San Joaquin and Livermore Valleys.

This subarea contains relatively few residences. Located in sheltered areas for the most part, residences are not easily seen from the roads. Two sanitary landfills are located off Altamont Pass and Vasco Roads. Fill areas are not generally visible from these roads; however, the Vasco Road landfill can be seen faintly in the distance from vantage points in the south portion of the Planning Area. The railroad parallels Altamont Pass Road for a short distance.

Site-Specific Characteristics

Laughlin Road Site #3

Laughlin Road Site #3 is between Vasco and Laughlin Roads near, and at a slightly lower elevation than, the BFI landfill. A photo-location and orientation map for the photographs and visual simulations of Laughlin Road Site #3 (and the other two potential Altamont WTP sites) is provided in Figure 3.1.2-1. Arrows in this figure represent the approximate location and direction from which the images were made. As can be seen in Figure 3.1.2-2A, Existing View, Laughlin Road Site #3 consists of, and is surrounded by, grazing land, and appears against a background of hills and ridgelines. The site is in the left central portion of the image, as viewed from Vasco Road at a height of about 5 feet above the ground. Brushy Peak appears near the left edge of the image. One residence can be seen in the distance (to the right of the grove of oak trees in the center of the image). The potential Altamont WTP site contains two low knolls along its ridgetop location, with a broad, shallow swale separating them. Visibility of the site is limited from Laughlin Road because of the lower elevation of the road compared to that of the southern knoll (left of the group of trees in the center of the

image). Visibility is only slightly better from Vasco Road because of the distance to the site (about 3/5 mile) and the lower elevation of the road.

The long range view of Laughlin Road Site #3 from Brushy Peak (about 1-3/4 miles) is relatively open, as can be seen in Figure 3.1.2-2B, Mitigated Constructed View from Brushy Peak. The northwestern corner of the site is slightly obstructed by an intervening ridge. These and other aspects of the views of this site are discussed in the Impacts and Mitigation Measures of this section under Site-Specific Visual Changes.

Dyer Road Site #5

Dyer Road Site #5 is southwest of the north end of Dyer Road. As can be seen in Figure 3.1.2-3A, Existing View, Dyer Road Site #5 consists of, and is surrounded by, grazing land, and appears against a background of hills and ridgelines. The site is in the right central portion of the image, and is viewed from Dyer Road at a height of about 5 feet above the ground. Brushy Peak appears in the background near the left edge of the image. There are approximately twelve residences along Dyer Road to the south of the site, two residences to the west, and one residence to the north. Ridgelines with existing windfarms are visible along the ridgelines to the north and west of the site, as well as to the east. Dyer Road Site #5 is visible clearly from the portion of Dyer Road adjacent to the site because it is only a few feet higher than the road and there is no obstructing topography.

The long range view of Dyer Road Site #5 from Brushy Peak (about 1-1/3 miles) is relatively clear, as can be seen in Figure 3.1.2-3B, Mitigated Constructed View from Brushy Peak. The southern portion of the site is slightly obstructed by an intervening ridge. These and other aspects of the views of this site are discussed in the Impacts and Mitigation Measures of this section under Site-Specific Visual Changes.

Dyer Road Site #1

Dyer Road Site #1 is southeast of the north end of Dyer Road. As can be seen in Figure 3.1.2-4A, Existing View, Dyer Road Site #1 consists of open range land between Dyer Road and the Dyer Canal reach of the South Bay Aqueduct. The unvegetated area in the lower right corner of the image is the east edge of Dyer Road. The line of darker vegetation in the central portion of the image is along the Dyer Canal. There are approximately twelve residences along Dyer Road west of the site and three to the northwest. The site is visible clearly from Dyer Road because it is at the same elevation as the road and there is no

obstructing topography. Viewed from Dyer Road, the site is backed by hills and ridgelines to the east, on which wind turbines are visible.

The long range view of the northern and southern ends of Dyer Road Site #1 from Brushy Peak (about 1-1/2 miles) is clear, as can be seen in Figure 3.1.2-4B, Mitigated Constructed View from Brushy Peak. The central portion of the site is obstructed by an intervening ridge. These and other aspects of the views of this site are discussed in the Impacts and Mitigation Measures of this section under Site-Specific Visual Changes.

Applicable Policies and Regulations

Alameda County Policies and Regulations

North Livermore Specific Plan

The North Livermore Specific Plan adheres to the City of Livermore Scenic Route Element (described below). The Specific Plan lists the findings of the City of Livermore Scenic Corridor Committee which include the hillsides on the north side of I-580 as significant visual features. The Specific Plan covers about 75 percent of Laughlin Road Site #3, but is a good Visual Quality guide for all three sites.

East County Area Plan

The ECAP lists one primary goal regarding sensitive viewsheds: "To preserve unique visual resources and protect sensitive viewsheds." The following ridgelines and viewshed policies are directly applicable to the evaluation of the three potential Altamont WTP sites:[3]

> Policy 106 (Ridgelines): The County shall preserve the following major visually-sensitive ridgelines largely in open space use:
>
> > The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore.
>
> Policy 111 (Viewsheds): The County shall require development to maximize views of the following prominent visual features:
>
> > The major ridgelines listed in Policy 106;
> >
> > Brushy Peak, Donlan Peak, and Mount Diablo; and
> >
> > Cresta Blanca, near Arroyo Road south of Livermore

City of Livermore Policies and Regulations

The Scenic Route Element of the City of Livermore General Plan defines scenic routes and view corridors for the area surrounding Livermore. The Element provides design standards for proposed development within scenic and view corridors, including provisions to preserve natural "ridge skylines" and to limit grading to preserve natural features where large stands of vegetation, scenic natural formations, or natural watercourses exist.[4] None of the three potential sites are located within the designated scenic corridor along I-580.

IMPACTS AND MITIGATION MEASURES

The existing visual character of the general vicinity in which the potential water treatment plant sites are located is dominated by wide expanses of sparsely developed, sparsely vegetated upland open space on the suburban edge of the City of Livermore. The primary visual characteristics of this area are rolling grass-covered hills and ridgelines containing numerous widely spaced clusters of trees; ranches consisting of dwellings, stables, barns, fences, and various utility buildings; primary and secondary roads; and numerous clusters and lines of wind turbines along the ridgelines. Evaluation of potential project impacts on the existing visual character of the individual sites entails analysis of the type and degree of change in visual attributes and patterns that would result from construction of the Altamont WTP.

To illustrate and examine the potential changes in visual character, a series of computer-generated visual simulations were created using photographs of the sites. The photos were made using a normal lens (55mm focal length) which approximates the view seen by the human eye. Three simulations were prepared for each site: a constructed view approximately at eye-level from the nearest public access to the site, a mitigated constructed view from the same point, and a mitigated constructed view from Brushy Peak. It should be noted that the layouts of the water treatment plant shown in simulations for Laughlin Road Site #3 and Dyer Road Site #1 are similar to those shown in the site plan figures in the Project Description section of this EIR (Figures 2-6 and 2-8). The layouts in eye-level simulations for Dyer Road Site #5 are different from that shown in Figure 2-7 of the Project Description. In these simulations, the facilities have been rotated to demonstrate the screening capabilities of the buildings themselves. As previously mentioned, all these layouts are conceptual: they do not represent engineering or design drawings of the water treatment plant in its final form, but are examples of how the water treatment plant facilities could be fitted onto the study sites. It is important to note that all the simulated landscaping shown in the mitigated views also is conceptual: no final decisions have been made regarding the type or arrangement of trees, shrubs, or other plants to be used. The mitigated views are illustrations of what can be

accomplished with landscaping to blend the water treatment plant visually into its surroundings.

In addition to the photo-simulations, three line-of-sight topographic profiles have been prepared to illustrate the view from the top of Brushy Peak. The profiles are based on models created by the environmental consultant team's engineers. Portions of all potential Altamont WTP sites would be within the long-range viewshed of the Brushy Peak Regional Preserve, and are included in the discussion of the simulations. The line-of-sight toward each of the potential Altamont WTP sites is shown in Figure 3.1.2-5, and the corresponding profile is shown in Figure 3.1.2-6, -7, or -8.

Site-Specific Visual Changes

Laughlin Road Site #3

Figure 3.1.2-2A, Constructed View, shows a computer-generated image of the Altamont WTP superimposed on a photograph of the existing landscape at Laughlin Road Site #3. Viewed from Vasco Road at a height of about 5 feet above the ground, the water treatment plant appears in the left central portion of the photo, below Brushy Peak, which forms the skyline near the left edge of the photo. The view from Vasco Road, about 3/5 mile southwest of the site, is the closest point on a public road from which one can see the buildings that would be constructed, if this site were selected for the Altamont WTP. A conceptual layout of the facilities on the site is shown in Figure 2-6 of the Project Description (Section 2 of this EIR).

From this distance, few details of the water treatment plant are visible. Two of the buildings can be seen, but the rolling topography of the site provides some natural screening for the lower few feet of the structures. Other facilities are hidden in this view by the buildings and the site topography. The grey tone of the buildings in the simulation was selected to make them more visible for the purposes of this EIR. Brown tones would be less visible at this stage of construction. For example, the group of buildings at the residence near the center of the photo (to the right of the oak grove) is less visible because its colors blend better with the surrounding landscape. Painted in these tones, and dwarfed as they would be by Brushy Peak, the Altamont WTP buildings would not make a remarkable visual impression on the viewer.

As part of the project, Zone 7 would landscape the Altamont WTP site. Figure 3.1.2-2B, Mitigated Constructed View, shows the same computer-generated image of the Altamont WTP that appears in Figure 3.1.2-2A, Constructed View. In this simulation, however, the water treatment plant has been screened by computer-generated landscaping. As a sample of what

could be accomplished with landscaping, the water treatment plant is shown surrounded by clusters of evergreen and oak trees. The top of one building is visible through the evergreens clustered along the southwestern boundary. Deep green tones for the structures would be less visible at this stage of vegetation growth. Depending on the type and size of trees selected for the landscaping, this image would represent a view of the site 10 to 25 years after the completion of construction of the water treatment plant. The clustering of the trees is an important feature for long-range views, because most of the other trees within the viewshed of the site occur in clusters (for example, the oaks in the center of the photo). The sample landscaping includes rapidly growing evergreens, to screen the site quickly (less than 10 years), and slower growing oaks, to blend with the native oaks in the area (more than 25 years).

Figure 3.1.2-2B, Mitigated Constructed View from Brushy Peak, shows a computer-generated image of the Altamont WTP on Laughlin Road Site #3 surrounded by clusters of evergreen and oak trees, the same age as those in Figure 3.1.2-2B, Mitigated Constructed View. The site is in the center of the photo. This photograph (and the long-range views of the other proposed sites) was made on a partially cloudy day less that 24 hours after a rainstorm, which accounts for the shadowy quality of the image. The view is from about 20 feet below the summit of Brushy Peak and about 75 feet out along the view line. The peak itself is completely surrounded by a dense grove of oaks which is impenetrable visually. In this view, the western edge of the site and less than 10 percent of the facilities on the north side of the site would be screened by an 800-foot-high ridge between the site and Brushy Peak. This relationship is shown in Figure 3.1.2-6, Laughlin Road Site #3 Profile, which illustrates the topography along the line-of-sight.

About 50 percent of the facilities are visible through the tree screen on the north and west sides of the site. Here again, deep green tones for the structures would be less visible at this stage of vegetation growth. Because other large clusters of trees appear in the background, the clusters around the water treatment plant tend to blend with their surroundings. Under these conditions, the Altamont WTP itself would be less visible than the staging area for the BFI landfill (to the right of center of this photo) or the rows of residential and commercial structures in the background.

Dyer Road Site #5

If the Altamont WTP were located at Dyer Road Site #5, it would be visible from the north end of Dyer Road, and would change the visual impression of the surrounding area relative to the open rangeland nature of land east of Dyer Road. Figure 3.1.2-3A, Constructed View, shows a computer-generated image of the Altamont WTP superimposed on a photograph of the existing landscape at Dyer Road Site #5. The site is viewed from Dyer Road (a shallow, graveled road-cut is visible in the lower right corner of the photo), adjacent to the site on the east, at a height of about 5 feet above the ground. Brushy Peak forms part of the skyline near the left edge of the photo.

This view of Dyer Road Site #5 is the closest point on a public road from which one can see the buildings that would be constructed, if this site were selected for the Altamont WTP. The buildings can be seen in more detail than in the simulations for Laughlin Road Site #3 because the viewer is much closer to the proposed facilities (about 500 feet). In this simulation, only two of the buildings of the water treatment plant are visible in the central portion of the photograph. This is because the layout has been rotated to use the buildings to screen the other facilities from Dyer Road. The grey tones for the buildings were selected to illustrate how color can influence visibility. When compared with the brown tones used in Figure 3.2.1-3B, Mitigated Constructed View, it will be noted that the greys stand out more from the surrounding rangelands than the browns.

As part of the project, Zone 7 would landscape the Altamont WTP site. Figure 3.1.2-3B, Mitigated Constructed View, shows the same view of the computer-generated image of the Altamont WTP that appears in Figure 3.1.2-3A, Constructed View. In this simulation, however, the water treatment plant has been portrayed in brown tones, and has been screened by computer-generated landscaping. As a sample of what could be accomplished with landscaping, the water treatment plant is shown surrounded by a line of evergreen trees, interspersed with low bushes. The buildings can be seen through the landscaping screen, but their lines are broken by the trees and shrubs. Although these structures appear larger than those in the Laughlin Road Site #3 simulation, because they are much closer to the viewer, they do not stand out as much, because their brown colors tend to blend with the surrounding landscape. Some detailing, for example in the form of siding, could be added to the buildings as another method of blending the structures with others on the surrounding rural-residential properties. As with the previous simulated landscaping, the size and type of vegetation selected would influence the speed of growth and density of the screening. This image represents a view of the site about 10 years after the completion of construction of the water treatment plant.

Figure 3.1.2-3B, Mitigated Constructed View from Brushy Peak, shows a computer-generated image of the Altamont WTP on Dyer Road Site #5 surrounded by evergreen trees, the same age as those in Figure 3.1.2-3B, Mitigated Constructed View. The site is in the center of the photo, and the layout is the same as that in Figure 2-7 in the Project Description (Section 2 of this EIR). Additional computer-generated landscaping is shown in the form of clusters of trees near the western edge of the facilities area and in the swale northwest of the facilities on the site. These new clusters mimic other existing clusters in the vicinity, further blending the site into its surroundings.

As mentioned previously, this photograph was made on a partially cloudy day less that 24 hours after a rainstorm, which accounts for the shadowy quality of the image. The view is from about 20 feet below the summit of Brushy Peak and about 150 feet out along the view line, because the peak itself is completely surrounded by a dense oak grove. The view contains numerous wind turbines and cuts for access roads in the middle ground between the site and Brushy Peak. In this view, the southern edge of the site and less than 10 percent of the facilities would be screened by an 850-foot-high ridge approximately 1.3 miles east of Brushy Peak. Construction on the site would include a cut slope about 30 to 35 feet deep on the uphill side of the facilities (see Figure 2-7). This excavation to provide a level pad for the water treatment plant would screen less than 10 percent of the facilities from Brushy Peak. An obstructing 1,040-foot-high ridge approximately 1.1 miles east of Brushy Peak would reduce views into the central part of Dyer Road Site #5 from lower parts of Brushy Peak, but not from the summit area. The relationship of the view from Brushy Peak and the intervening topography is shown in Figure 3.1.2-7, Dyer Road Site #5 Profile, which illustrates the line-of-sight.

Although the lagoons and portions of the buildings are visible through the tree screen, the lines of the water treatment plant are broken by the screening and the existing windfarms. Here again, deep green tones for the structures would make them less visible at this stage of vegetation growth. Under these conditions, the Altamont WTP itself would be less visible from Brushy Peak than the windfarms.

Dyer Road Site #1

Figure 3.1.2-4A, Constructed View, shows a computer-generated image of the Altamont WTP superimposed on a photograph of the existing landscape at Dyer Road Site #1, viewed from Dyer Road, adjacent to the site on the west, at a height of about 5 feet above the ground. The water treatment plant occupies the entire central portion of the photograph. A conceptual layout of the facilities on the site is shown in Figure 2-8 of the Project Description (Section 2 of this EIR). A line of wind turbines along Altamont Ridge forms the skyline above the site.

If the Altamont WTP were located at Dyer Road Site #1, it would be visible all along its Dyer Road frontage, and would change the visual impression of the surrounding area relative to the open rangeland nature of land east of Dyer Road. Views altered by construction of the water treatment plant at this location would include those within the Dyer Road corridor, those from the residences located west of Dyer Road, and long range views from Brushy Peak.

In Figure 3.1.2-4A, the Constructed View is oriented slightly differently from the Existing View to highlight a middle distance vista of the proposed facilities. The Existing View photo looks toward the site from the east side of Dyer Road (a graveled berm of Dyer Road is visible in the lower right corner of the photo). The Constructed View presents a simulation from near the southwestern edge of Dyer Road Site #5, approximately 1,000 feet west of Dyer Road. From this vantage point, the entire length of Dyer Road Site #1 can be seen. The layout of the proposed facilities can be seen more easily than in the simulations for Laughlin Road Site #3 and Dyer road Site #5 because of this middle distance perspective. The grey tones of the buildings and the bright blue tons for the lagoons in the simulation were selected to make them stand out against the surrounding vegetation.

As part of the project, Zone 7 would landscape the Altamont WTP site. Figure 3.1.2-4B, Mitigated Constructed View, shows the same computer-generated image of the Altamont WTP that appears in Figure 3.1.2-4A, Constructed View. In this simulation, however, the water treatment plant has been portrayed in brown tones, and has been screened by computer-generated landscaping. As discussed for the simulations of the other two sites, brown tones would make the facilities stand out less, because those colors would tend to blend with the surrounding landscape. As a sample of what could be accomplished with landscaping, the water treatment plant is shown fronted by a line of evergreen trees along Dyer Road, with a few added to the northern edge of the site. The buildings can be seen through gaps in the landscaping screen, but their lines are broken by the trees. Some detailing, for example in the form of siding, could be added to the buildings as another method of blending the structures with others on the surrounding rural-residential properties. As with the previous simulated

landscaping, the size and type of vegetation selected would influence the speed of growth and density of the screening. This image represenst a view of the site about 10 years after the completion of construction of the water treatment plant.

Figure 3.1.2-4B, Mitigated Constructed View from Brushy Peak, shows a computer-generated image of the Altamont WTP on Dyer Road Site #1 fronted by evergreen trees, the same age as those in Figure 3.1.2-4B, Mitigated Constructed View. The site is in the right central portion of the photo. As mentioned previously, the photograph was made on a partially cloudy day less that 24 hours after a rainstorm, accounting for the shadowy quality of the image. The view is from about 20 feet below the summit of Brushy Peak and about 150 feet out along the view line, because the peak itself is completely surrounded by a dense oak grove. The view contains numerous wind turbines and cuts for access roads in the middle ground between the site and Brushy Peak. In this view, the central portion of the site and about 50 percent of the facilities would be screened by a 1,040-foot-high ridge approximately 1.1 miles east of Brushy Peak. The relationship of the view from Brushy Peak and the intervening topography is shown in Figure 3.1.2-8, Dyer Road Site #1 Profile, which illustrates the line-of-sight.

Although parts of the lagoons at the south end of the site and parts of the buildings at the north end of the site are visible through the tree screen, the lines of the water treatment plant facilities are broken by the screening and the existing windfarms. Here again, deep green tones for the structures would make them less visible at this stage of vegetation growth. Under these conditions, the Altamont WTP itself would be less visible from Brushy Peak than the windfarms.

Standards of Significance

Impacts resulting from a change in visual character are subjective. To some, any development and change in the existing setting, regardless of the design, is considered significantly adverse; others may consider any development to be beneficial. From the standpoint of visual quality, the CEQA Guidelines do not provide specific standards of significance, but note that a project would normally have a significant effect on the environment if it would have a "substantial, demonstrable negative aesthetic effect." Specific standards relative to visual quality have been determined by Alameda County, as noted above in the Applicable Policies and Regulations section. Most jurisdictions select broad panoramas (scenic vistas and routes such as Altamont Pass Road and I-580) that are accessible and visible from public locations. Private views from or into privately owned land are not generally found to be significant for impact assessment by most jurisdictions.

In further clarification for this EIR, according to the Environmental Checklist suggested by the CEQA Guidelines, significant visual impacts would arise if the proposed project:

> conflicts with the adopted aesthetically-related environmental plans and goals of the community where it is located; or
>
> results in a substantial, demonstrable negative aesthetic effect, such as obstruction of a designated scenic vista or view open to the public, or the creation of an aesthetically offensive site open to public view.

Impact 3.1.2-1

Placement of the proposed Altamont WTP at any of the proposed sites would create visual impacts on the long-range viewshed of Brushy Peak Regional Preserve. (PS)

The locations of certain types of structures (such as water tanks, wind turbines, transmission towers, and microwave dishes) are determined by the structure's function. That function may necessitate siting the structure in a visually sensitive area. The visual impact of new Altamont WTP facilities (operations building, sludge drying beds, etc.) can be minimized through the use of a variety of techniques, as previously discussed. However, attempting to hide structures in an inappropriate way (e.g., behind a dense row of trees on an otherwise treeless area) can actually make it more noticeable than it would be without any screening. Building colors compatible with the surrounding landscape, surface texture of the buildings, additional landscaping, and berming are all elements to be considered in screening visually incompatible structures.

ECAP policies related to protection of visually sensitive ridgelines and hillsides, preservation of both foreground and distant views from parkland and public trails, and preservation of important viewsheds are all applicable to a discussion of the potential visual impacts caused by the proposed project. Mitigation measures, including use of compatible colors, surface textures of buildings, landscaping and berming, would apply to the reduction of impacts on views, specifically, the long-range viewshed from Brushy Peak. New Altamont WTP facilities (operations building, sludge drying beds, etc.) would be noticeable as a change in the visual environment compared to the current undeveloped state of the three potential sites.

Line-of-sight analysis and examination of the photo-simulations indicate that the Altamont WTP would be visible from Brushy Peak at any of the proposed sites. Because of the proposed landscaping included as part of the project, and the intervening topography and windfarms, water treatment plant facilities on Dyer Road Site #1 would be least visible from Brushy Peak, slightly more apparent on Dyer Road Site #5, and most visible at Laughlin Road Site #3. In each of these situations, the view of the facilities would be reduced substantially by the proposed new landscaping. The following mitigation measures, recommended by the environmental consultant to diminish further the effects of visual change, would reduce this impact to an insignificant level.

Mitigation Measure 3.1.2-1

- Preserve existing vegetation to minimize the visual impact of new development. Add new landscaping to enhance the appearance of the new facilities or to screen negative visual elements. Choose landscaping that blends with the surrounding natural or historic vegetation. Although fast-growing plants often are selected for screening because they will camouflage a view in a short period of time, slower-growing native vegetation is preferred because it will be more compatible with the surrounding area over the long term. Selection of plant materials also will need to be considered in terms of fire hazards, biological resources and erosion control.

- Design new Altamont WTP facilities to blend with the rural nature of the surrounding area to the full extent possible. The buildings could incorporate architectural features such as compatible colors or surface textures to resemble a barns or other similar rural structures in the area.

- Grading of the water treatment plant site should be sensitive to the visual characteristics of the area to complement or enhance the natural contours of the surrounding landscape and to preserve existing vegetation as much as possible. Vegetation or berming may be added to screen or soften the effects of grading. Features such as drainage improvements on cut and fill slopes should be designed to be as invisible as possible. Grading for the access road to Laughlin Road Site #3 and to proposed structures within each site also should be sensitive to the visual characteristics and natural contours of the surrounding landscape.

Mitigates: Impact 3.1.2-1 (I)

Implementation:	Include in construction drawings and specifications prior to approval of final project plans and issuance of site development contracts.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.1.2-2

Placement of the Altamont WTP on Laughlin Road Site #3 would place the facility within ridgeline views of the Altamont Hills. (PS)

The visual simulations for Laughlin Road Site #3 reveals that the new structures would not break the top of the ridgeline as viewed from the selected vantage points on Vasco Road and near the summit of Brushy Peak. However, placement of structures at this proposed site would alter the current view from Vasco Road of a landscape predominated by grass-covered hillslopes with widely separated clusters of trees. The new buildings would be within general views of the Altamont Hills ridgeline to the north of the City of Livermore, and south of brushy Peak. The proposed landscaping included as part of the project, and the intervening distance and topography would reduce substantially the visual changes observable at Laughlin Road Site #3 from Vasco Road and from Brushy Peak, by blending the site with the surrounding countryside. Visual simulations for Dyer Road Sites #5 and #1 show that the Altamont WTP would not have the same impact on long-range views of the Altamont Hills as Laughlin Road Site #3, but would alter the visual landscape in the immediate vicinity of either site. The same mitigation measures, recommended by the environmental consultant to diminish further the effects of visual change, would reduce this impact to an insignificant level.

Mitigation Measure 3.1.2-2

Implement Mitigation Measure 3.1.2-1.

Mitigates:	Impact 3.1.2-2 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans and issuance of site development contracts.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

NOTES - Visual Quality

1. Alameda County Planning Department, *East County Area Plan Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

2. Alameda County Planning Department, *East County Area Plan Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

3. Alameda County Planning Department, *East County Area Plan Volume 1, Goals, Policies and Programs,* adopted May 5, 1994, pp. 30-31.

4. City of Livermore, *Livermore General Plan 1976-2000, Scenic Route Element*, revised September 28, 1998, p. 15.

3.1.3 RECREATIONAL RESOURCES

Introduction

This section describes existing recreational resource characteristics in and around the three potential Altamont WTP sites, potential changes in recreational use caused by the project, and suggested mitigation measures to address potentially significant adverse impacts. Site reconnaissance, the East County Area Plan (ECAP), the North Livermore Specific Plan, the East Bay Regional Park District's Master Plan 1997, and meetings and phone conversations with East Bay Regional Park District and Livermore Recreation and Park District staff serve as the basis for this recreational resources evaluation.

The proposed Altamont WTP sites are located within eastern Alameda County, and are located within the East County Planning Area, which extends from the Pleasanton/Dublin ridgeline in the west to the San Joaquin County line in the east, and from the Contra Costa County line in the north to the Santa Clara County line in the south.[1]

Most of the land in the East County is unincorporated and consists of extensive hills that frame the rapidly urbanizing Livermore-Amador Valley. Non-urbanized land uses within this area are rural residential, agriculture (mostly grazing with some irrigated cultivation in South Livermore Valley and Mountain House), regional parks and publicly owned watershed lands, and special natural resource land uses such as sand and gravel quarries and windfarms. These non-urbanized lands form part of the East County's regionally significant open space. Other lands in this category include environmentally sensitive lands, such as critical habitat and sensitive viewsheds, and lands constrained by potentially hazardous conditions (i.e., steep topography, landslide, flood and fault zones). The ECAP defines regionally significant open space as those lands that have an open and relatively natural character and are large enough to be important on an area-wide level.[2]

SETTING

Regional Recreational Resources

Park resources in Eastern Alameda County are administered by the East Bay Regional Parks District (EBRPD) and by the Livermore Area Recreation and Park District (LARPD). LARPD is responsible for developing and maintaining parks, special use facilities, and trails within the LARPD's service area, which includes the City of Livermore and some surrounding unincorporated areas. EBRPD is responsible for acquisition, development and maintenance of

regional parks, open space areas and regional trails.[3]

Public Lands

Regional Parks

EBRPD owns or manages nearly 20,000 acres of regional park land in the East County area. Several additions to the park system are under consideration. The regional park nearest the three potential Altamont WTP sites is Brushy Peak Regional Preserve (see Figure 2-2 in Section 2, Project Description). LARPD owns approximately 500 acres in this area, including the peak and surrounding lands to the north and east, and currently manages access to the Preserve through guided tours. EBRPD is developing a master plan for the Preserve, including potential expansion of their land ownership surrounding the preserve (EBRPD currently owns approximately 900 acres of land directly south of Brushy Peak) and a planned trail system leading to the Preserve from various parts of the East County.

Watershed Lands

The San Francisco Water Department owns approximately 67,900 acres of watershed lands in eastern Alameda County and adjacent Santa Clara County (about half of this acreage overlaps with the Sunol and Ohlone Regional Parks). The 40,000 acres of watershed located in the East County comprises much of Sunol Valley and surrounds the San Antonio Reservoir south of Vallecitos Road and Calaveras Reservoir on the Santa Clara County line. These lands were acquired between 1870 and 1900. Since 1930 they have been fenced to prevent trespass and health and safety hazards. Although some of the land is used for grazing, which is allowed by permit, the watershed lands have generally retained high biological resource quality. Small areas of water management land under State ownership in the East County include the Bethany Reservoir and the South Bay Aqueduct Corridor.

Other Open Space

Environmentally Sensitive Lands

Environmentally sensitive lands comprise critical biological habitat, unique natural features and important viewsheds, ridgelines and community buffers. These are areas vulnerable to even minor levels of disturbance. Those lands that are not already included in the public domain as parks, watershed lands, and preserves, are protected by environmental regulation

and local government policies to reduce disturbance. Although not part of the formal park system, these lands contribute to the open space character of the East County and provide vistas for residents and visitors.

Hazard Zones

Hazard zones are lands that could jeopardize the public health, safety and welfare if they were developed. Hazardous zones include flood-prone areas and geologically unstable areas such as those containing landslides and steep topography, or those subject to seismic activity. Development usually is controlled or precluded in such areas by State and local regulations and policies. Such areas are not part of the formal park system, but contribute to the vistas available to users of the other recreational lands. For further discussion of hazard zones in relation to potential development of the Altamont WTP, see Section 3.2.2, Soils, Geology and Seismicity.

Site-Specific Characteristics

The two main recreational resources in the vicinity of the proposed Altamont WTP sites are Bethany State Park and Reservoir, located between 4 and 7 miles to the northeast, and Brushy Peak Regional Preserve, 1 to 3 miles north and/or west of the proposed Altamont WTP sites. Bethany State Park is not visible from any of the potential Altamont WTP sites; therefore, there are no potential viewshed impacts on this recreational resource related to the proposed Altamont WTP.

Portions of all potential Altamont WTP sites are within the long-range viewshed of the Brushy Peak Regional Preserve, and several planned trails are located near or within potential Altamont WTP sites, as discussed below. Viewshed analysis and line-of-sight discussion, based on models created by the environmental consultant team's engineers, appears in Section 3.1.2, Visual Quality, of this EIR. Line-of-sight paths and profiles for the view from Brushy Peak toward each of the potential Altamont WTP sites are depicted in the Visual Quality section.

<u>Laughlin Road Site #3</u>

Proposed trails leading to Brushy Peak are planned in the vicinity of Laughlin Road Site #3. The trails would follow a natural canyon north along Laughlin Road leading to the Preserve, but would not cross any portion of this proposed Altamont WTP site.[4] Line-of-sight analysis for this potential Altamont WTP site indicates that an 800-foot-high ridge located approximately 1.7 miles south of Brushy Peak would partially obstruct views from trails in the Preserve into the site. However, the Altamont WTP on Laughlin Road Site #3 site would be visible from the summit area of Brushy Peak.

Dyer Road Site #5 and Site #1

Planned trails leading to the Brushy Peak Regional Preserve are located east of Dyer Road Site #1 along the Dyer Canal reach of the South Bay Aqueduct access road, and to the east and north of Dyer Road Site #5.[5] Either site would be visible from the segment of the trail along Dyer Canal. Line-of-sight analyses for these potential Altamont WTP sites indicate that an obstructing 850-foot-high ridge approximately 1.3 miles east of Brushy Peak would reduce views from trails in the Preserve into the western parts of Dyer Road Site #5. An obstructing 1,040-foot-high ridge approximately 1.1 miles east of Brushy Peak would reduce views from the trails into the central part of Dyer Road Site #1. However, at least half of the water treatment facilities on either of these sites would be visible from the summit area of Brushy Peak.

Relevant Policies and Regulations

The East County Area Plan (ECAP) lists the following policy implications related to visual impacts of development that would affect recreational resources:[6]

- protection of visually sensitive ridgelines and hillsides;
- preservation of both foreground and distant views from parkland and public trails; and
- preservation of important viewsheds.

The Scenic Route Element of the City of Livermore General Plan (North Livermore Specific Plan) defines the I-580 Scenic Route and other view corridors.[7] The Element provides design standards for proposed development within scenic and view corridors, including provisions to preserve natural "ridge skylines" and to limit grading to preserve natural features where large stands of vegetation, scenic natural formations, or natural watercourses exist.[8] The East Bay Regional Park District Master Plan 1997 defines park "sectors" and outlines planning processes and policies for acquisition, protection and maintenance of Park resources. The

Diablo Sector includes Brushy Peak and the proposed Altamont WTP sites. The Park District has long-range plans to develop trails in this area, among others (see Impact 3.1.3-1, below).[9]

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The CEQA Guidelines (Environmental Checklist) suggest that a project would result in significant impacts to recreational resources if it would:

- increase demand for neighborhood or regional parks or other recreational facilities; or
- affect existing recreational opportunities.

Impact 3.1.3-1

Placement of the proposed Altamont WTP at any of the proposed sites would create visual impacts on the long-range viewshed of Brushy Peak Regional Preserve. (PS)

Line-of-sight analysis and examination of the photo-simulations indicate that the Altamont WTP would be visible from Brushy Peak at any of the proposed sites. Because of the proposed landscaping included as part of the project, and the intervening topography and windfarms, water treatment plant facilities on Dyer Road Site #1 would be least visible from Brushy Peak, slightly more apparent on Dyer Road Site #5, and most visible at Laughlin Road Site #3. In each of these situations, the view of the facilities would be reduced substantially by the landscaping.

CEQA does not cite visual impacts as a potential cause of significant effects on recreational resources. However, ECAP policies related to protection of visually sensitive ridgelines and hillsides, preservation of both foreground and distant views from parkland and public trails, and preservation of important viewsheds are all applicable to a discussion of potential impacts on recreational resources caused by the proposed project. The ECAP recognizes that views into and from parkland and public trails are an important component in the enjoyment of these facilities. Visual impacts are discussed in Section 3.1.2, Visual Quality, of this EIR; the same factors considered to minimize negative impacts on public views would apply to development in the vicinity of parks or other recreational open space uses to minimize visual impacts on those facilities.[10] Mitigation measures recommended by the EIR consultant and listed in Section 3.1.2, Visual Quality, including use of compatible colors, surface textures for buildings, landscaping and berming, would apply to the reduction of impacts on recreational

resources, specifically, the long-range viewshed from Brushy Peak. New Altamont WTP facilities (operations building, sludge drying beds, etc.) would be noticeable as a change in the visual environment compared to the current undeveloped state of the three potential sites. However, the following mitigation measure, recommended by the environmental consultant to diminish further the effects of visual change, would reduce this impact to an insignificant level.

Mitigation Measure 3.1.3-1

Implement Mitigation Measure 3.1.2-1 in Section 3.1.2, Visual Quality, and continue discussions with the East Bay Regional Park District, the Livermore Area Recreation and Parks District, the City of Livermore, and Alameda County to develop and implement appropriate measures to make the Altamont WTP more compatible with its surroundings.

Mitigates:	Impact 3.1.3-1 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans and issuance of site development contracts.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

NOTES - Recreational Resources

1. Alameda County Planning Department, *East County Area Plan, Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

2. Alameda County Planning Department, *East County Area Plan, Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994.

3. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Volume 1*, April 2000.

4. East Bay Regional Park District, map with sketches of proposed trails in the Brushy Peak Regional Preserve area (unpublished, EIP attendance at meeting with EBRPD and Zone 7 Water Agency), April 13, 2000.

5. East Bay Regional Park District, map with sketches of proposed trails in the Brushy Peak Regional Preserve area (unpublished, EIP attendance at meeting with EBRPD and Zone 7 Water Agency), April 13, 2000.

6. Alameda County Planning Department, *East County Area Plan, Volume 2, Background Reports—Settings, Trends and Issues,* adopted May 5, 1994, Visual Resources Section, pp. 10-11.

7. City of Livermore, *Livermore General Plan 1976-2000, Scenic Route Element*, revised September 28, 1998, pp. 14-15.

8. City of Livermore, *Livermore General Plan 1976-2000, Scenic Route Element*, revised September 28, 1998, pp. 14-15.

9. East Bay Regional District, *Master Plan 1997,* adopted December 17, 1996.

10. Alameda County Planning Department, *East County Area Plan, Volume 2, Background Reports—Settings, Trends and Issues*, adopted May 5, 1994.

3.1.4 CULTURAL RESOURCES

Introduction

The Altamont Water Treatment Plant (WTP) project area has been examined to identify potentially significant cultural and historic resources. The assessment is based on previous surveys, archival records and literature searches of the California Archaeological Inventory and Historical Resources Information System undertaken by the Northwest Information Center at Sonoma State University, and examination by the environmental consultant of the three WTP sites and the associated conveyance and transmission pipeline alignments (see Figure 1-1 in the Introduction to this EIR). The records searches and literature surveys are included in Appendix C of this document.

Archival Research and Field Investigations

Reviews of records and literature on file with the Northwest Information Center conducted at the request of EIP Associates in April and July 2000 indicate that the proposed project area, including the three possible Altamont WTP sites and the proposed alignment of the water conveyance and transmission pipelines, contains one recorded Native American site and one recorded historic cultural resource listed with the Historical Resources Information System. These two resources have been recorded as a result of seven previous archeological studies that have addressed portions of the project area, including full or partial study of each of the three possible sites being considered for the water treatment plant. Archaeological studies to date have addressed approximately 99 percent of Dyer Road Site #1, 90 percent of the conveyance and transmission pipeline alignments, 80 percent of Dyer Road Site #5, and less than 5 percent of Laughlin Road Site #3. These studies were undertaken to evaluate the potential for archaeological and/or cultural resources in association with several water, energy, transportation and landfill location projects in Alameda County between 1960 and the early 1990s. Based upon examination of State and federal inventories, there are no designated historic properties in any of the possible water treatment plant sites.

The Northwest Information Center commonly identifies cultural resources in three categories: prehistoric resources, Native American resources, and historic resources. In general, prehistoric or Native American resources can include chert to obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources can include buildings, structures, objects or sites. For example, historic homestead sites can include stone or adobe foundations

or walls; structures and remains with square nails; and refuse deposits, often in old wells or privies.

As some cultural resources may be particularly sensitive, the Northwest Information Center has provided general descriptions and general locations of cultural resources listed with the Historic Resources Information System for the purposes of this document. These general descriptions are provided to avoid potential physical alteration of the materials and their context that may result from public disclosure of more specific information. Other cultural resources are known to occur in the area, but they have not been completely surveyed or recorded, and therefore are not eligible for designation. These known sites would require complete surveying, if they could be affected by the project.

SETTING

Regional

The project area's known cultural resources consist of Native American archaeological sites and historic sites. Native American archaeological sites in this portion of Alameda County tend to be situated along the sandstone ridgelines and midslope terraces or alluvial flats near sources of fresh water. Historic homestead sites or other historic sites in the area are primarily associated with the settlement of the Livermore Valley. This settlement is principally associated with the acquisition of the Rancho Las Positas by Robert Livermore and Jose Noriega in 1837.

Prehistory/Archaeology

The project area straddles the ethnographic boundary between the Chochenyo tribelet of the Costanoan or Ohlone speaking people and the Northern Valley Yokuts. Alluvial deposits in the project area date to the Pleistocene period, suggesting that there is little potential for deeply buried deposits because fossils do not occur in alluvium. As such, no paleontological resources are expected to occur in the project area. However, clusters of significant cave sites listed with the Historical Resources Information System have been identified within the sandstone ridgelines in this part of Alameda County.

Historic Structures

Review for possible historic structures in the project area has included only sources listed in previously conducted field investigations and State and federal inventories of historic resources. There are no recorded historic structures, which have been designated as historic resources, within any of the possible water treatment plant sites. However, areas near the sites contain buildings, structures, and/or objects 45 years of age or older. These may be considered of historical value by the Office of Historic Preservation.

Site-Specific Characteristics

The proposed and future conveyance and transmission pipelines cross environments likely to contain archaeological deposits, most specifically along Laughlin Road—a public road in an area that has not been independently surveyed. The reviews of records and literature indicate that there is a high potential for Native American sites on Dyer Road Site #5 and Laughlin Road Site #3.

There are five known historic sites in the project vicinity including one known historic homestead site and four other historic sites. Four of these known historic sites are along the proposed transmission pipeline alignment outside of the possible Altamont WTP sites. One is located in Dyer Road Site #5. There is a low probability for encountering historic cultural resources at Laughlin Road Site #3 and Dyer Road Site #1.

Probable Conveyance and Transmission Alignments

The proposed conveyance alignment would pass through previously disturbed areas between Bethany Reservoir and the north end of Dyer Road. From that point, the conveyance or transmission alignment would be in County roads or rights-of-way. The conveyance or transmission line would pass along Laughlin Road, an area considered highly sensitive for prehistoric archaeological material based on previous archival and archeological field studies. In addition, there is one historic homestead site and three other recorded historic sites located along the proposed alignment.

Laughlin Road Site #3

Laughlin Road Site #3 is a vacant 50-acre parcel on the west side of Laughlin Road about 1.9 miles north of the intersection of Laughlin Road and Altamont Pass Road (see Figure 2-1, in Section 2, Project Description). Less than 5 percent of the site has been addressed previously

in archaeological studies of the project area. However, this site is considered archaeologically sensitive because of its proximity to or inclusion of sandstone formations, an environment that may be identified with cave sites in this part of Alameda County. As such, there is high potential for Native American sites to occur at this location. Records and literature indicate that there is low probability of identifying historic cultural resources at the site as the area is undeveloped.

Dyer Road Site #5

Dyer Road Site #5 is a vacant 50-acre parcel on the west side of Dyer Road about 1.6 miles north of the intersection of Dyer Road and Altamont Pass Road (see Figure 2.1). Approximately 80 percent of Dyer Road Site #5 has been addressed previously in archaeological studies of the project area. One of the previously conducted investigations noted numerous significant prehistoric resources, including one of the Murietta or Walker cave sites, adjacent to the western boundary of Dyer Road Site #5. As such, this site is considered highly sensitive for prehistoric archaeological material. As noted above, one known historic site, discussed within a report on file with the Northwest Information Center, is located within the Dyer Road Site #5, indicating a high possibility of identifying historic cultural resources at the site.

Dyer Road Site #1

Dyer Road Site #1 is a vacant 25-acre parcel on the east side of Dyer Road about 1.5 miles north of the intersection of Dyer Road and Altamont Pass Road. Approximately 99 percent of Dyer Road Site #1 has been addressed previously in archaeological studies of the project area. Given the alluvial nature of Dyer Road Site #1, there is a low probability for encountering Native American sites at this location. Records and literature indicate that there is also a low probability for encountering historic cultural resources at this site.

Relevant Policies and Regulations

State Policies and Regulations

The proposed project would be subject to the policies and regulations of the California Environmental Quality Act (CEQA). CEQA Section 21084.1 states that "a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." This section defines "historical resource" as one that is listed in, or determined eligible for listing in, the California Register of

Historical Resources, and states that resources listed in a local register of historical resources "are presumed to be historically or culturally significant." A "local register of historic resources" is defined in Public Resources Code Sec. 5020.1 as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution." A "substantial adverse change" is defined in Public Resources Code Sec. 5020.1 as "demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

Alameda County Policies and Regulations[1]

The East County Area Plan addresses applicable policies concerning the area surrounding the three potential Altamont WTP Sites:

- Policy 127: The County shall identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of East County.

- Policy 128: The County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to implement appropriate mitigation measures that offset the impacts.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Paleontological Resources

Based on the alluvial nature of the sediments at Dyer Road Site #1 and the elastic nature of the bedrock on the other two sites, all paleontological resources are considered to be significant.

Historic and Archaeological Resources

For the purposes of this analysis, potentially significant impacts to historical resources (which may include archaeological resources) are defined in Section 15064.5 (b)(2) of the State CEQA Guidelines as actions that would:

- demolish or materially alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources;

- demolish or materially alter in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to local ordinance or resolution (PRC Section 5020.1[k]), or its identification in an historical resources survey meeting the requirements of PRC Section 5024.1(g); or

- demolish or materially alter in an adverse manner those physical characteristic of a resource that convey its historical significance and that justify its eligibility for its inclusion on the California Register as determined by a lead agency.

According to Section 15064.5(a)(4) of the State CEQA Guidelines, the fact that a resource has not been listed in, or determined to be eligible for listing in the California Register of Historic Resources or a local register of historical resources, or identified in a historical resources survey, does not preclude a lead agency from determining that the resources may be an historical resource.

Impact 3.1.4-1

The proposed and future conveyance/transmission alignment crosses environments likely to contain archaeological deposits, specifically along Laughlin Road. There is a high potential for Native American sites at Laughlin Road Site #3 and Dyer Road Site #5. (PS)

The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.1.4-1

- Prior to commencement of earth-moving activities, Zone 7 would retain a qualified archaeologist (i.e., listed on the Registry of Professional Archaeologists) to conduct a Phase I survey of the unsurveyed portion of the selected site to determine the presence of cultural resources on or near the ground surface. A report of the investigation would be submitted to the Northwest Information Center at Sonoma State University and to Zone 7 within two weeks of its completion.

- If the Phase I survey indicates the presence of cultural resources, Zone 7 would retain a qualified archaeologist to conduct a Phase II subsurface testing program for the cultural resources discovered on the project site. This may be accomplished through the mechanical excavation of a number of auger holes as well as 1x1-meter, hand-excavated units for stratigraphic control. The Phase II report would include a discussion of significance (depth, nature, condition, and extent of resources), final mitigation recommendations, and cost estimates, and would be submitted to Zone 7 for review and approval. The report would be submitted to Zone 7, the State Office of Historic Preservation (SHPO), and the

Northwest Information Center at Sonoma State University, within two weeks of its completion.

- If Phase II subsurface testing is necessary, Zone 7 would retain a qualified archaeologist to prepare a Cultural Resources Management Plan based on Phase II subsurface test results. The plan would outline options for cultural resource avoidance and/or protection. A full data recovery program would be designed, if avoidance were feasible through design. Possible recovery plans include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary. Preparation of the cultural resources management plan would be coordinated with SHPO, the Native American Heritage Commission, and Native American and historic preservation groups. The plan would be reviewed and approved by Zone 7 and by SHPO.

- Zone 7 would retain a qualified archaeologist to perform spot-checks (at a frequency predetermined by the archaeologist and Zone 7) of the selected project site during ground-disturbing activities. The archaeologist would have the authority to halt construction activities in the affected area for a period of time necessary to conduct an appropriate assessment of any suspected archaeological resources that may be uncovered. If any archaeological deposits or features are encountered in the absence of the archaeologist, work would cease in the affected area, and the archaeologist would be consulted. If significant archaeological resources are found and cannot practicably be avoided, scientific data recovery, analysis, and documentation would be conducted, at the discretion of the archaeologist. A report of any studies conducted would be prepared and submitted to Zone 7, SHPO, and the Northwest Information Center at Sonoma State University within two weeks of the study's completion.

  If burials are discovered, no further excavation or disturbance of the site or reasonably suspect nearby area would occur until:

  - the County Coroner is contacted to determine that no investigation of the cause of death is required.

  - the Coroner determines whether the remains are Native American, in which case the Native American Heritage Commission would be notified within 24 hours, in order to identify a Most Likely Descendant, and to ensure the requirements outlined in CEQA Guidelines Sections 15064.5(e)(1)(B) and 15064.5(e)(2), and Public Resources Code Section 5097.98, have been satisfied.

Mitigates:	Impact 3.1.4-1 (I)
Implementation:	Include in plans and specifications of the project, and make part of the grading and construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.1.4-2

Although there are no recorded historic structures on any of the possible water treatment plant sites, or in any of the proposed or future alignments, there are buildings and structures near the sites and alignments that are at least 45 years old which may be considered of historical value by the Office of Historic Preservation and could be damaged by vibration during the construction phase of the project. (PS)

Use of heavy construction equipment near fragile historic buildings or structures can result in damage to historical resources depending on the equipment and methods used during construction. For example, the vibrations from a loaded construction truck passing within 18 feet of an extremely fragile building could damage the structure.

Structures along the conveyance and transmission alignments would need to be assessed by an architectural historian before commencement of project activities that may potentially alter historical materials and their context.

If development-related effects on important historical resources are identified, significant impacts could be reduced to an insignificant level by the following mitigation measure recommended by the EIR consultant.

Mitigation Measure 3.1.4-2

Zone 7 would route heavily loaded trucks away from identified historic resources and operate earth-moving equipment as far away from fragile sites as possible.

Mitigates:	Impact 3.1.4-2 (I)
Implementation:	Include in plans and specifications for the project, and make part of the grading and construction contract.

Responsibility: Zone 7 Water Agency Water Supply Engineering Section
Monitoring: Zone 7 Water Agency Capital Projects Group

NOTES - Cultural Resources

1. Alameda County Planning Department, *East County Area Plan, Volume 1, Goals, Policies and Programs,* adopted May 5, 1994.

3.1.5 TRAFFIC AND CIRCULATION

Introduction

This section describes existing traffic and circulation characteristics in and around the three potential Altamont Water Treatment Plant (WTP) sites, potential changes in traffic and circulation because of the project, and suggested mitigation measures to address potentially significant adverse impacts, if any. Site reconnaissance, the East County Area Plan (ECAP), the North Livermore Specific Plan, the City of Livermore General Plan, and other relevant plans and policies of the City of Livermore and Alameda County serve as the basis for this traffic and circulation evaluation.

SETTING

Regional Traffic and Circulation[1]

The transportation system in eastern Alameda County is comprised of an interconnected network of federal, state, city and county roads, local and regional transit systems, local bikeways, and rail rights-of-way. Several of the major roadways serve to connect the Central Valley and the Bay Area. Roadway access into and out of the East County area is primarily by four major access points: Altamont Pass in the east, Dublin Canyon in the west, San Ramon Valley in the north, and Mission Pass in the south. These points function as gateways for two major corridors into the East County: an east/west route (I-580) and a north/south route (I-680), which are supported by approximately 50 arterial or collector roads.

Site-Specific Characteristics

All of the potential Altamont WTP sites are located north of I-580, northeast of Livermore (see Figure 2-2 in Section 2, Project Description). Laughlin Road Site #3 is on the west side of the dead-end Laughlin Road, 1.9 miles north of the intersection of Laughlin Road and Altamont Pass Road. Dyer Road Sites #5 and #1 are both located approximately 1.5 miles north of the intersection of Dyer Road and Altamont Pass Road. Dyer Road is a dead-end road adjacent to the South Bay Aqueduct.

Altamont Pass Road extends between the Greenville Road and Grant Line Road I-580 interchanges, and serves as a northern alternate to I-580. Laughlin and Dyer Roads are both

dead-end public roads that extend northward into the Altamont Hills, and provide access for residences and for wind-turbine maintenance activities.

Proposed Construction

The proposed project would locate a WTP on one of three potential sites. Water conveyance pipelines would be required to deliver raw South Bay Aqueduct (SBA) water to the Altamont WTP and to deliver treated water to the Zone 7 distribution system at Kitty Hawk Road. Two main alignments for the pipelines were identified in the Zone 7 Treated Water Facilities Master Plan: the Altamont Pass Road alignment and the Brushy Peak alignment.[2] The Altamont Pass Road alignment was designed to follow the rights-of-way of existing roadways, where possible, between the SBA and each proposed Altamont WTP location. Treated water would be similarly conveyed from the chosen WTP along existing roadways to connect to Kitty Hawk Road. The Brushy Peak alignment was identified as a second potential route, primarily for raw water conveyance to Laughlin Road Site #3, or for treated water conveyance to Vasco Road.[3]

Conveyance pipeline construction would primarily use conventional open trench construction methods, with trenchless construction required through some sections. The duration of pipeline construction is estimated to last for approximately six months. The general construction approaches for the major reaches of the two potential conveyance alignments are discussed below.

Dyer Road Construction

Construction within Dyer Road would mainly use conventional open trench construction methods for rural and residential two-lane roads. The pipeline would probably be placed within the southbound lane. One traffic lane would remain open for access to residences, wind-turbine maintenance, and Department of Water Resources personnel responsible for maintenance of the SBA. The crossing of the Union Pacific Railroad and the SBA near the intersection of Altamont Pass Road would require trenchless technology (underground directional bores rather than open trenches and excavation).

Altamont Pass Road Construction

Construction within Altamont Pass Road would consist primarily of open trench construction methods. One lane could remain open for traffic throughout construction. Typical topography

of Altamont Pass Road consists of steep inclines adjacent to one side of the roadway. Construction of the pipeline should be within the lane opposite the slope to avoid slope stability issues, to minimize cut volumes and to provide a suitable staging area. Construction for approximately the first 5,500 feet (south of the Dyer Road intersection and north of I-580) would be within the southbound lane.

The pipeline would cross the SBA approximately 5,500 feet south of the Dyer Road intersection, at the point where the SBA crosses to the east side of Altamont Pass Road. This conflict would most likely require trenchless construction (underground directional bores). At this point, the hillside inclines are mainly located adjacent to the southbound lane. Therefore, the pipeline would cross Altamont Pass Road, continuing within the northbound lane of the roadway.

Laughlin Road Construction

Construction within Laughlin Road would consist of open trench construction methods. One lane could remain open for traffic throughout construction.

Altamont WTP Construction

Construction of the Altamont WTP facilities would require access road construction at Laughlin Road Site #3 to connect the site to Laughlin Road, while Dyer Road Sites #5 and #1 would be accessible from existing roads adjacent to the proposed sites. Placement of plant facilities would require the least amount of grading and backfill at the relatively level Dyer Road Site #1, with more grading and backfill required at either Laughlin Road Site #3 or Dyer Road Site #5.[4] Approximately 10 to 30 project-related trips per day may be required for various construction activities and would use existing two-lane, low use roadways in the project area to access the selected site.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Based on the CEQA Guidelines Environmental Checklist, the proposed project would be considered to have a significant effect on the environment if it would result in a substantial adverse effect because of:

- conflicts with the adopted environmental plans and policies of the community where it is located;
- hazards or barriers for pedestrians or bicycles;
- hazards to safety from design features;
- inadequate emergency access or access to nearby uses; or
- insufficient parking capacity on-site or off-site.

In addition, the project would have a significant impact if it would generate traffic volumes sufficient to cause unacceptable service levels on local roads.

Impact 3.1.5-1

Construction of the proposed Altamont WTP pipelines would cause temporary construction-phase congestion impacts on local roads for a period of approximately six months, and may cause permanent damage to elements of the transportation system such as road pavement. (PS)

During a four-month peak of construction activities, approximately 10 to 30 project-related trips per day may be required for various construction activities. These trips are needed for construction vehicles, haul trucks providing construction materials, and service and construction employee vehicles. Small, short-term impacts to local traffic patterns would result and temporary minor traffic hazards would be created.

All of the pipeline corridors associated with the alternative sites utilize public roads that are relatively rural in nature, with very few residences and low volumes of traffic. Since each of the alternative sites use the same traffic corridor, there is no distinguishing difference in pipeline construction impacts, except for an additional length of pipeline in Laughlin Road to the Laughlin Road site.

Pipeline construction impacts would be relatively more disruptive to local traffic than treatment plant construction due to the placement of pipelines within road rights-of-way and the need to move traffic around the construction area.[5] Implementation of the following mitigation measure, recommended by the EIR consultant, would reduce this impact to a level of insignificance.

Mitigation Measure 3.1.5-1

Zone 7 would provide adequate off-road parking at construction sites for all construction-related vehicles throughout the construction period to relieve potential congestion of local roads. If adequate parking cannot be provided on the construction sites, a satellite parking area should be designated, and a shuttle bus should be operated to transfer construction workers to the job sites.

Zone 7 would repair any structural damage to public roadways, returning any damaged sections to original structural condition. Zone 7 should survey the condition of the public roadways along truck routes providing access to the project site before construction, and should again survey after construction is complete. A before-and-after survey report should be completed and submitted to Alameda County for review, including the location and extent of any construction-related damage.

Mitigates:	Impact 3.1.5-1 (I)
Implementation:	Include in specifications prior to approval of final project plans and issuance of building permits.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Alameda County Public Works Agency, Maintenance and Operations Department

Impact 3.1.5-2

Construction of the proposed Altamont WTP would cause temporary construction-phase congestion impacts on local roads for a period of approximately two years. (PS)

Construction phase truck traffic may adversely impact local traffic and circulation in the vicinity of the selected Altamont WTP site. During the peak of construction activities, approximately 10 to 30 project-related trips per day may be required for various construction activities. These trips are needed for construction vehicles, haul trucks providing construction materials, and service and construction employee vehicles. Small, short-term impacts to local traffic patterns would result and temporary minor traffic hazards would be created. Dyer Road Site #1 would require less grading than the other two potential sites, resulting in fewer hauling trips due to the lower quantities of soil being transported off-site. Otherwise, estimated truck trips do not vary greatly with each site.

Mitigation Measure 3.1.5-2

Zone 7 should provide adequate off-road parking at construction sites for all construction-related vehicles throughout the construction period to relieve potential congestion of local roads. If adequate parking cannot be provided on the construction sites, a satellite parking area should be designated, and a shuttle bus should be operated to transfer construction workers to the job sites.

Mitigates:	Impact 3.1.5-2 (I)
Implementation:	Include in specifications prior to approval of final project plans and issuance of building permits.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Alameda County Public Works Agency, Maintenance and Operations Department

Impact 3.1.5-3

Operational phase truck traffic could adversely impact local traffic and circulation in the vicinity of the selected Altamont WTP site. (I)

After construction of the Altamont WTP, operational phase access for chemical deliveries and removal of partially dried sludge material will use I-580 and public roads leading to the selected site. Chemical deliveries are estimated at approximately ten deliveries per month for the 42-million-gallon-per-day water treatment facility, and during the six-month dry weather period when sludge handling typically occurs, an average of one to two truck trips per week may be required. Operation of the Altamont WTP would involve the transportation of hazardous chemical to the site, with potential impacts on local traffic and circulation in the event of a transportation accident. This potential impact is discussed in Section 3.2.5, Hazardous Materials and Public Safety, under Impact 3.2.5-2.

Operation of the Altamont WTP will include permanent employee traffic and is expected to generate approximately five to ten trips per day. This amount of traffic, while an increase over existing traffic conditions, would not change service levels on any local roads and is not expected to cause substantial adverse effects on circulation after the construction of the Altamont WTP. The estimated frequency of chemical deliveries and sludge disposal is not expected to vary among the three potential treatment sites.

Although the Altamont WTP would not contribute substantially to cumulative effects on traffic and circulation, a discussion of traffic impacts relative to growth and development within the

Livermore-Amador Valley is included for informational purposes in Appendix D, Traffic and Circulation. Zone 7 does not have the authority to make land use development or transportation improvement decisions, and therefore does not have the ability to mitigate the secondary effects of growth on local and regional traffic and transportation systems.

Mitigation Measure 3.1.5-3

None required. (I)

NOTES – Traffic and Circulation

1. Alameda County Planning Department, *East County Area Plan, Section C, Transportation,* adopted May 5, 1994.

2. Camp Dresser & McKee, *Treated Water Facilities Master Plan,* February 2000.

3. Montgomery Watson, *Zone 7 Altamont WTP—Treatment Facilities Site Feasibility Technical Memorandum,* May 30, 2000.

4. Montgomery Watson, *Zone 7 Altamont WTP—Treatment Facilities Site Feasibility Technical Memorandum,* May 30, 2000.

5. Montgomery Watson, *Zone 7 Altamont WTP—Treatment Facilities Site Feasibility Technical Memorandum,* May 30, 2000.

3.2 PHYSICAL/BIOLOGICAL ISSUES

3.2.1 BIOLOGICAL RESOURCES

Introduction

This section describes the biological resources that occur in the vicinity of three sites proposed for the Altamont Water Treatment Plant (WTP) and associated transmission pipelines extending to the urban limit line, evaluates potential project impacts on these resources, and proposes mitigation measures to avoid or reduce those impacts.

Data on biological resources occurring in the north Livermore area were reviewed in preparation of this report. These include the *North Livermore Specific Plan DEIR - Part 1, Volumes I and III*, and *Resource Conservation Program Management Practices Handbook*,[1] the *Treated Water Facilities Master Plan - Final Report*,[2] the *Zone 7 Water Agency Water Supply Planning Program Draft EIR*,[3] the *Scenic Vista Residential Development Focused EIR*,[4] the *DEIR - Laguna Palisades Property*,[5] and the *Preliminary Biological Assessment - South Livermore Valley Plan*.[6] Information on occurrences of special-status species in the vicinity of the project was obtained from the California Natural Diversity Data Base (CNDDB)[7] and the California Native Plant Society's *Electronic Inventory*.[8] Information contained in this literature base was updated and expanded for this analysis based on field surveys conducted by EIP biologists on March 3, March 28, March 31, and April 19, 2000. New information and recent regulatory changes were reviewed and incorporated into this document as explained below.

SETTING

Application Regulations

Several federal, State, and regional agencies have jurisdictional responsibilities regarding permit approvals and other regulatory actions for public improvements and private development projects that may affect biological resources in the project area. Many of the permits and regulatory actions discussed below require conditions to mitigate adverse impacts resulting from development activities.

Federal Regulations

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act requires that a permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to the discharge of dredged or fill materials into any "waters of the United States" including wetlands. Waters of the United States are broadly defined in the Corps' regulations (33 CFR 328) to include navigable waterways, their tributaries, lakes, ponds, and wetlands. Wetlands are defined as: "Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."[9] Such permits often require mitigation to offset losses of these habitat types. Wetlands that are not specifically exempt from section 404 regulations (such as drainage channels excavated on dry land) are considered to be "jurisdictional wetlands." The Corps is required to consult with the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency, State Regional Water Quality Control Board and California Department of Fish and Game (among other agencies) in carrying out its discretionary authority under Section 404.

Section 401 of the Clean Water Act

A Section 401 Water Quality Certification or waiver from the California Regional Water Quality Control Board is required before a Section 404 permit becomes valid. The Regional Board also will review the project for consistency with Waste Discharge Requirements under the State land disposal regulations (Subchapter 15). In reviewing the project, the Regional Board will consider impacts to waters of the State in addition to filling of wetlands in accordance with the State wetland policy. Usually, mitigation is required (if not already a condition of the 404 permit) in the form of replacement of restoration of adversely impacted "waters of the U.S."

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act makes it unlawful to "take" (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others.

Federal Endangered Species Act of 1973

Section 3 of the Federal Endangered Species Act (FESA) defines an endangered species as any species or subspecies "in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as any species or subspecies of fish, wildlife, or plants "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Threatened or endangered species and their critical habitat are designated through publication of a final rule in the *Federal Register*. Designated endangered and threatened animal species are fully protected from a "take" without a take permit administered by the USFWS under Section 10 of the FESA. A take is defined as the killing, capturing, or harassing of a species. Proposed endangered or threatened species or their critical habitat are those for which a proposed regulation, but not final rule, has been published in the Federal Register. Federally-listed plants occurring on private land with no other federal jurisdiction are not subject to the Section 10 take provisions. Section 10 take permits may require the permit applicant to prepare a Habitat Conservation Plan (HCP) that specifies the measures that will be implemented to minimize and mitigate impacts from incidental take.

Section 7 of the FESA requires that federal agencies ensure that their actions (including funding or permitting as in this case) are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. This obligation requires federal agencies to consult with the USFWS on any actions (including issuing Section 404 permits or federal funding) that may affect listed species to ensure that reasonable and prudent measures will be undertaken to mitigate impacts on listed species. Consultation with USFWS can be either formal or informal depending on the likelihood of the action to adversely affect listed species or critical habitat. Once a formal consultation is initiated, USFWS will issue a Biological Opinion (either a "no jeopardy" or a "jeopardy" opinion) indicating whether the proposed agency action will jeopardize the continued existence of a listed species or result in the destruction or modification of its critical habitat. A permit cannot be issued for a project with a "jeopardy" opinion unless it is redesigned to lessen impacts.

State Regulations

California Endangered Species Act (CESA)

The California Endangered Species Act declares that deserving plant or animal species will be given protection by the State because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the State. CESA

establishes that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated as rare, threatened, or endangered through official listing by the California Fish and Game Commission.[10] Listed species are given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed.

On private property, endangered plants may be protected by the Native Plant Protection Act (NPPA) of 1977. Threatened plants are protected by CESA, and rare plants are protected by the NPPA. However, CESA authorizes that "Private entities may take plant species listed as endangered or threatened under the FESA and CESA, through a federal incidental take permit issued pursuant to Section 10 of the FESA, if the California Department of Fish and Game (CDFG) certifies that the incidental take statement or incidental take permit is consistent with CESA."[11] In addition, the California Environmental Quality Act (CEQA)[12] requires disclosure of any potential impacts on listed species and alternatives that would reduce those impacts.

California Environmental Quality Act - Treatment of Listed Plant and Animal Species

FESA and CESA protect only those species formally listed as threatened or endangered (or rare in the case of the State list). Section 15380 of the CEQA Guidelines independently defines "endangered" species of plants or animals as those whose survival and reproduction in the wild are in immediate jeopardy and "rare" species as those who are in such low numbers that they could become endangered if their environment worsens. Therefore, a project normally will have a significant effect on the environment if it will substantially affect a rare or endangered species of animal or plant or the habitat of the species. The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

State of California - Sections 3503, 3503.5, 3800 of the Fish and Game Code

These sections of the Fish and Game Code prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." Such a take would also violate federal law protecting migratory birds.[13]

Incidental Take Permits are required from the CDFG for projects that may result in the incidental take of species listed by the State of California as endangered, threatened, or

candidate species. The permits require that impacts to protected species be minimized to the extent possible and mitigated to a level of insignificance.

Regional Conditions

The proposed project sites are northeast of the City of Livermore and north of I-580 on the western slope of the Altamont Hills (Mt. Diablo Range) in the northeastern portion of Alameda County. Much of the undeveloped rural eastern portion of the project vicinity is used for dryland cultivation. Most of the remaining land is intensively grazed non-native grassland. Disturbance resulting from these uses has resulted in a predominance of invasive, non-native annual grasses and forbs.

Site Conditions

Laughlin Road Site #3

This site occupies a promontory between Laughlin Road and Vasco Road (see Figure 2-3 in Section 2, Project Description). Vegetation on the site is non-native grassland, used for grazing cattle. Sandstone rock outcrops and spontaneously occurring almond trees (*Prunus dulcis*) are near the central portion of the western boundary. No permanent or seasonal wetlands or drainages occur on the site.

Dyer Road Site #5

This site is located on the west side of the north end of Dyer Road (see Figure 2-4 in Section 2, Project Description). Vegetation on the site is predominately non-native annual grassland used for cattle grazing. A seasonal drainage traverses the northwestern portion of the site.

Dyer Road Site #1

Dyer Road Site #1 is a relatively level site between Dyer Road and the South Bay Aqueduct (see Figure 2-5 in Section 2, Project Description). Vegetation on the site is a mix of native and non-native grasses and forbs typical of grassland habitats in the region. The site is used for cattle grazing. Four vernal (seasonal) ponds occur on the site: a narrow, linear, east-west trending pond along the northern site boundary that was created by construction of an elevated road; two north-south trending ponds along the eastern boundary, created by the construction

of the South Bay Aqueduct berm; and a small, shallow circular pond occurring in vehicle ruts in the south central portion of the site.

Vegetation and Plant Communities

Plant species observed on the potential Altamont WTP sites are listed in Appendix E, Table E-1 and briefly described by community type in the following two paragraphs.

Non-Native Grassland

The dominant vegetation type on all of the project sites and the surrounding undeveloped agricultural lands in the North Livermore area is non-native grassland comprised of introduced annual species of grasses and forbs. Slender wild oats, farmer's foxtail, ripgut brome, and soft chess are the most common annual grass species on the sites. (Scientific names and a complete species list appears in Appendix E, Table E-1.) No native perennial grasses were observed on any of the possible water treatment plant sites. Introduced species of annual and perennial forbs observed on the sites include red-stemmed filaree, star thistle, wild radish, and mustards. Native annual wildflowers observed on the sites include fiddleneck and dwarf owl's clover. All sites are used for grazing cattle.

Wetland Vegetation

Wetland vegetation occurring in seasonal vernal ponds on Dyer Road Site #1 includes annual hydrophytic (water-dependent) species such as popcorn flower and hyssop loosestrife. (Scientific names and a complete species list appears in Appendix E, Table E-1.) Emergent wetland vegetation dominated by cat-tails (*Typha* sp.) occurs in seasonal and perennial roadside ditches within the transmission pipeline corridors.

Wildlife Habitats

Two types of habitats, described below, are found on the sites. Wildlife species observed on the possible water treatment plant sites are listed in Appendix E, Table E-2. They include amphibians, birds, and mammals.

Non-Native Grassland Habitat

Non-native grassland on each of the possible sites provides habitat for small burrowing mammals, such as Botta's pocket gopher and California ground squirrels, which are preyed

upon by hawks and medium to large mammals, such as coyotes and foxes. Ground squirrel burrows provide potential nesting habitat for snakes, lizards, amphibians, and burrowing owls. Grasslands provide nesting and foraging habitat for a number of graniverous and insectivorous bird species.

Vernal Pond Habitat

Although they are not naturally occurring features, the four vernal ponds on Dyer Road Site #1 provide habitats similar to those of vernal pools. Vernal pools in the area north of Livermore provide breeding habitat for the federally threatened vernal pool fairy shrimp and the federally endangered vernal pool tadpole shrimp. Vernal pools in the Livermore area also provide breeding habitat for the federally threatened California red-legged frog and the California tiger salamander, a federal and State Species of Concern.

A common snipe was observed feeding on tadpoles in a vernal pond on Dyer Road Site #1. An amphibian egg mass, most likely that of the common Pacific chorus frog, was observed in the small pond in the south central portion of the site. Larvae (tadpoles), most likely those of the common Pacific chorus frog, also were observed in the three larger vernal ponds on Dyer Road Site #1. In addition, a number of special-status plant species occurring in vernal pools throughout the area north of Livermore could occur in the Dyer Road Site #1 vernal ponds, although none were observed during the site surveys.

Sensitive Habitats

Sensitive habitats are those that are becoming more restricted in California because of agriculture and urban development. Sensitive habitats include native grasslands, wetlands, riparian, and freshwater marsh elements. Sensitive habitats also may include those habitats that could support federal or State-listed plant or animal species. Regional and local regulations and ordinances also may define sensitive habitat, and may include tree or creek ordinances that have been adopted by cities and counties. The Natural Heritage Division of the CDFG maintains a list of terrestrial natural communities. With the exception of wetlands, sensitive habitats do not receive any formal legal protection.

Holland[14] and the CNDDB[15] describe a number of sensitive communities and habitats occurring in the Livermore Valley. Long-term agricultural use and commercial and residential development have reduced the extent of some of these sensitive communities and habitats, resulting in a decline in the numbers of individuals of some special-status plant and animal species. The only sensitive habitats on the possible Altamont WTP sites are wetlands.

Wetlands are considered sensitive habitats because wetland acreage and the value of wetland habitats are declining rapidly throughout California as they are filled, channelized, or culverted for urban and agricultural development. Wetlands are of high value as water sources for all wildlife species. Seasonal wetlands provide habitat for reptiles and adult and larval amphibians; may contain resting eggs or pupae, or estivating larvae or adults; and may provide over-wintering, foraging, and resting areas for migratory waterfowl. Wetlands on Dyer Road Site #1 and in roadside ditches along the transmission pipelines corridors provide potential habitat for several sensitive plant and animal species. Because wetlands provide such valuable habitat for wildlife, State (CDFG) and federal agencies (Corps) strive to protect and increase them through enforcement of "no net loss" policies.

No wetlands occur on Laughlin Road Site #3. Seasonal wetlands include four vernal ponds on Dyer Road Site #1 resulting from altered topography following construction of an elevated road on the north side of the site, the berm of the South Bay Aqueduct on the east side of the site, and vehicle ruts in the south central portion of the site. For purposes of this report, these seasonal features are referred to as "vernal ponds" to distinguish them from northern claypan vernal pools occurring naturally in the North Livermore vicinity. Other seasonal wetlands include two creek drainages on Dyer Road Site #5, and roadside ditches in the pipeline transmission corridor. In the project area, vernal ponds and pools provide critical habitat for several special-status invertebrate, vertebrate, and plant species. Wetlands occurring on the possible Altamont WTP sites or in the alignment of transmission pipelines are likely to be subject to Corps jurisdiction.

Sensitive Plant and Wildlife Species

Sensitive plant and wildlife species are those designated by federal, State, local, or scientific organizations as needing protection because of rarity or threats to their existence. Sensitive species include those listed as threatened, endangered, or proposed for listing, candidates for listing, or species of concern to the USFWS or the CDFG. The possible Altamont WTP sites are within the general geographic range of several sensitive plant communities and habitats, and special-status plant and wildlife species.

The USFWS provided a list of 62 *Endangered and Threatened Species that May Occur in or be Affected by Projects in the Altamont and Byron Hot Springs U.S. Geological Service 7.5 Minute Quadrangles* (Appendix E, Table E-3).[16] Species included on the list represent 6 wildlife, 8 fish, and 2 plant species federally-listed as Endangered (FE) or Threatened (FT); 3 wildlife species proposed for federal listing as Endangered (PE) or Threatened (PT); 1 wildlife and 1 fish Candidate species for federal listing (FC); and 23 wildlife, 4 fish, and 10 plant

Species of Concern to the USFWS (FSC). In addition, the USFWS is concerned with impacts to the bald eagle (*Haliaeetus leucocephalus*) and the American peregrine falcon (*Falco peregrinus anatum*), which have been removed from the endangered species list because their populations are no longer in decline. The greater sandhill crane (*Grus canadensis tabida*) and the little willow flycatcher (*Empidonax trailii brewsteri*) are State-listed bird species which are included on the USFWS list.

Occurrences of special-status species are shown on an overlay of USGS maps provided by the CNDDB.[17] EIP biologists conducted field surveys to locate, identify, and map sensitive biological resources on the proposed project sites during March and April 2000 (Figures 2-3, 2-4 and 2-5 in Section 2, Project Description). Occurrences of sensitive biological resources on Laughlin Road Site #3 are shown in Figure 3.2.1-1. Sensitive biological resources on Dyer Road Site #1 and Dyer Road Site #5 are shown in Figure 3.2.1-2. No focused protocol surveys were conducted for special-status species and the potential exists for additional occurrences of special-status species beyond those known and observed occurrences which are identified below. A complete CNDDB listing of Endangered and Threatened species that may occur in the Altamont and Byron Hot Springs Quadrangles appears in Appendix E, Table E-3.

All special-status plant species and all but nine of the special-status animal species in the CNDDB listing have been eliminated from further consideration in this EIR because the specific habitats they require are not present in the project area or their known geographic range does not include the general vicinity of northeastern Livermore, including the project area. None of the species eliminated from further consideration was observed during biological field surveys.

Federally Listed Plant Species

Contra Costa Goldfields *(Lasthenia conjugens* - FE, CNPS List 1B - possibly extirpated). Contra Costa goldfields is a low herbaceous annual in the sunflower family occurring in wet

grasslands and vernal pools, and producing yellow flowers from March through June. Once ranging from the North Coast, southern Sacramento Valley, and San Francisco Bay Area to the South Coast Ranges, it is now restricted to Napa, Solano, and Alameda Counties. The non-native grassland and vernal ponds on Dyer Road Site #1 provide potentially suitable habitat for Contra Costa goldfields; however, none were observed during surveys conducted by EIP botanists in spring 2000.

Federally-Listed Wildlife Species

Longhorn Fairy Shrimp *(Branchinecta longiantenna* - FE*)*. The longhorn fairy shrimp is endemic to seasonal short-lived cool-water vernal pools in grassland in the eastern margin of the Central Coast mountains. It occurs in clear water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales. The CNDDB for the Byron Hot Springs quadrangle reports the occurrence of longhorn fairy shrimp in two unspecified locations. Potential habitat occurs in vernal ponds on Dyer Road Site #1 for the longhorn fairy shrimp.

Vernal Pool Fairy Shrimp *(Branchinecta lynchi* - FT*) .* The vernal pool fairy shrimp is endemic to seasonal short-lived cool-water vernal pools in grassland in the Central Valley, Central Coast and South Coast mountains. It occurs in clear rainwater-filled depressions in sandstone and grassed swales, earth slumps, basalt-flow depression pools, and in vernal pools in alkali sink habitats. Vernal pool fairy shrimp are active from early December to early May. Their eggs hatch when ephemeral pools fill with water, and develop rapidly through larval stages into adults. Following mating, the female carries the eggs to the bottom of the pool. The eggs become dormant when the pool dries, and hatch when the pool fills with water the following rainy season. Vernal pool fairy shrimp have been documented in pools and swales in alkali grassland in the vicinity of Hartford Road near the Springtown Alkali Sink. Potential habitat occurs in vernal ponds on Dyer Road Site #1 for the vernal pool fairy shrimp.

Vernal Pool Tadpole Shrimp *(Lepidurus packardi - FE)*. The vernal pool tadpole shrimp is found mainly in the northern and eastern Central Valley of California. Its distribution overlaps that of longhorn and vernal pool fairy shrimp, upon which it is thought to prey. Potential habitat occurs in vernal ponds on Dyer Road Site #1 for the vernal pool tadpole shrimp.

California Red-legged Frog *(Rana aurora draytonii* - FT, CSC, CDFG Protected*)*. The California red-legged frog is found in lowlands, foothills, woodlands and grasslands, usually near marshes, pools, or other permanent water sources with emergent and sub-emergent vegetation. Red-legged frogs disperse widely following the onset of the rainy season, and are

known to travel about 1.5 miles in search of water bodies appropriate for breeding sites. They lay their eggs in loose, oval floating clusters of 2,000-5,000 eggs around floating vegetation. In order for California red-legged frog larvae (tadpoles) to metamorphose into adult frogs, successful breeding pools must retain water until late July. Potential breeding habitat occurs in vernal ponds on Dyer Road Site #1 for the California red-legged frog. Potential breeding habitat for red-legged frogs could be present in the roadside ditches along Dyer, Altamont Pass and Laughlin roads. All of the sites are within the California red-legged frog critical habitat area (Map Unit 15) designated in a proposed rule published in the *Federal Register*.[18] When the Rule becomes final after the October 11 comment deadline, it will be necessary to initiate Section 7 Endangered Species Act Consultation with the USFWS despite the apparent absence of the frog itself. The USFWS will then issue a biological opinion on whether the project will destroy or degrade elements of critical habitat.

San Joaquin Kit Fox *(Vulpes macrotis mutica* - FE, ST*)*. The San Joaquin kit fox once occurred throughout California's Central Valley and parts of the Salinas and Santa Clara Valleys. Loss of habitat to urban, agricultural, and industrial development has severely reduced the range of this subspecies. The San Joaquin kit fox typically inhabits annual grassland or mixed shrub/grassland throughout low, rolling hills and flatlands. The home range is about 1 to 3 square miles and individual home ranges often overlap. Dens usually are in loose-textured soils on slopes of between 2 to 14 degrees. Where hard clay soils are present in the northern portion of their range, kit foxes often excavate existing California ground squirrel dens. Data from extensive surveys conducted in the vicinity of North Livermore indicate that San Joaquin kit fox occur in small isolated populations east of Vasco Road. Potential denning and foraging habitat for the San Joaquin kit fox occurs on all the potential Altamont WTP sites, but no dens or kit fox sign were observed during the biological surveys.

Federal Candidate Species

California Tiger Salamander (*Ambystoma californiense* - FC, CSC*).* The California tiger salamander lives in annual grasslands and in the grassy understory of Valley Foothill Woodland habitats in Central and Northern California. Tiger salamanders need underground summer refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding. Residents report sightings of California tiger salamanders in the vicinity of Dyer Road Site #1, and the species is known to occur in Frick Lake, south of Laughlin Road Site #3. The vernal ponds on Dyer Road Site #1 provide potential breeding habitat for this species.

Federal Species of Concern

California Linderiella *(Linderiella occidentalis* - FSC*).* California linderiella is endemic to California and is the most common invertebrate inhabitant of long-lived cool-water, vegetated pools of California's Central Valley grasslands. Its range is from near Redding in the north to as far south as Fresno County, mainly to the east of the Sacramento and San Joaquin Rivers. California linderiella is known to occur on the Springtown Reserve mitigation site west of the possible Altamont WTP sites. California linderiella potentially could occur in vernal ponds on Dyer Road Site #1, or in roadside ditches in the transmission pipelines corridors.

Ferruginous hawk (wintering) *(Buteo regalis* - FSC, CSC*).* The ferruginous hawk does not breed in California, therefore no breeding habitat for the species occurs in the project area. However, known winter foraging habitat for the hawk includes open grasslands in the project area. No ferruginous hawks were observed during the biological surveys.

Western Burrowing Owl (burrow sites) *(Athene cunicularia hypugea* - FSC, CSC). Burrowing owls are permanent residents in open, dry annual and perennial grasslands and shrublands in the vicinity of the project. Burrowing owls use burrows of rodents and other small mammals for nesting and cover. The CNDDB reports one siting approximately 6 miles northeast of Dyer Road Sites #5 and #1. In March and April 2000, EIP biologists conducted Phase I Habitat Assessments at the possible Altamont WTP sites according to burrowing owl survey protocol and mitigation guidelines prepared by the California Burrowing Owl Consortium[19] by walking transects to search for burrowing owl dens or other indications of their use of the site (sign: tracks, guano, pellets, feathers, prey remains), and suitable habitat, including California ground squirrel burrows. No burrowing owls or their burrows were documented on any of the possible water treatment plant sites.

Although not included on the USFWS list, the white-tailed kite (*Elanus leucurus* - CDFG Fully Protected - nesting), the loggerhead shrike (*Lanius ludovicianus* - FSC,CSC), and the California horned lark (*Eremophila alpestris actia* - CSC) were observed foraging on the possible Altamont WTP sites and in the vicinity. There is potential nesting habitat for the white-tailed kite in trees west of Dyer Road Site #5. There is potential nesting habitat for the loggerhead shrike in trees adjacent to Laughlin Road Site #3. There is potential nesting habitat for the California horned lark in grasslands on each of the possible water treatment plant sites.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

For the purpose of this EIR, impacts to biological resources are considered significant if implementation of the proposed Altamont WTP project would result in one or more of the following conditions:

- substantial reduction of the habitat of a wildlife species;
- a drop in a wildlife population below self-sustaining levels;
- elimination of a plant or animal community;
- reduction or restriction of the number or range of a rare or endangered plant or animal;
- substantial effect on a rare or endangered species of animal or plant or the habitat of the species;
- substantial interference with the movement of any resident or migratory wildlife species; or
- the loss of wetland or riparian habitat.

In addition, the following are considered in evaluating potential impacts to biological resources: (1) any change in the diversity of plant or animal species; (2) any reduction in the numbers of any unique, rare, or endangered species of plants or animals; (3) any introduction of new species of plants or animals into the area; (4) any barrier to the migration or movement of animals; or (5) the deterioration of existing fish or wildlife habitat.

Impacts in any of the above categories would be considered significant effects of the project if they could not be (a) eliminated, (b) avoided or minimized by redesign or relocation of some components of the project, (c) reduced to a less-than-significant level, or (d) compensated for by replacement habitat of at least equal extent and value.

Methodology

The examination of project-specific impacts on biological resources is based on information contained in literature cited in the Biological Resources Introduction, and additional information provided by USFWS biologists. Mitigation measures are consistent with those set forth in the *North Livermore Specific Plan DEIR.*[20] Although the possible Altamont WTP sites are not included in the *North Livermore Specific Plan* area, these practices are applicable to management of resources of these sites.

Impact 3.2.1-1

Construction of the Altamont WTP and associated infrastructure on any of the possible sites would remove grassland foraging habitat of the State and federally Endangered San Joaquin kit fox. (S)

The USFWS considers all proposed sites to be San Joaquin kit fox foraging areas because they are located on the western edge of the San Joaquin kit fox range. Dyer Road Site #1 was included in the biological analysis for Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion and was identified as mitigation acreage for loss of San Joaquin kit fox habitat associated with that project. The dedication of the site as mitigation acreage has been established as an Alameda County Condition of Approval for the Altamont Landfill project. Additionally, preliminary U.S. Fish and Wildlife Section 7 consultation identified this site as mitigation acreage. This site would be available only if appropriate alternate mitigation could be identified by Zone 7 and if agreements with Waste Management, Inc., Alameda County, and the U.S. Fish and Wildlife are secured. In order to secure the agreements, it is likely that Zone 7 would have to demonstrate to USFWS and Alameda County that other available water treatment plant sites are not feasible, including expansion at existing treatment plant sites. The following mitigation measures, included as part of the proposed project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-1

Loss of foraging habitat would be replaced by preservation of similar grassland habitat in the vicinity. The USFWS probably would require replacement of lost San Joaquin kit fox foraging habitat at a ratio of at least 3:1, or to be funded through in lieu fees, paid by Zone 7 to the USFWS to purchase land for foraging habitat.

Mitigates:	Impact 3.2.1-1 (I)
Implementation:	Zone 7 will reach a habitat replacement agreement with the USFWS sometime before the end of the WTP design phase.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-2

Site grading and construction on Dyer Road Site #1 could result in the direct loss of California red-legged frogs, their eggs, or larvae through filling of the vernal ponds, or

indirect loss resulting from degradation of their aquatic breeding habitat and upland estivation habitat. (PS)

Although no eggs, adults, or larvae of California red-legged frogs were observed, potential breeding habitat occurs in vernal ponds on Dyer Road Site #1. The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-2

Project design should avoid direct impacts to the vernal ponds on Dyer Road Site #1, and should not site any part of the water treatment plant or associated infrastructure within 300 feet of a pond unless siting the facility closer to vernal ponds is approved by the USFWS and the CDFG. If Dyer Road Site #1 is chosen as the Altamont WTP site, further discussion between Zone 7 and the USFWS and CDFG would determine whether any portions of the facility could be sited within 300 feet of a vernal pond. Project design should avoid changes in the hydrologic regime, and should avoid siltation or pollution of the ponds during construction or operation of the facility.

Where loss of wetlands cannot be avoided completely, Zone 7 should provide mitigation such as the creation of new wetlands to ensure there is no net loss of wetland acreage or habitat value. All modifications to wetlands (including the filling of seasonal wetlands) is required to be coordinated with the USFWS, CDFG, the Corps, and the Regional Water Quality Control Board by State and federal law to ensure that all mitigation requirements and design modifications are incorporated into the project. The wetland replacement ratio would depend upon the habitat value of the vernal ponds. If surveys find that fairy shrimp are present in the ponds, mitigation for loss of fairy shrimp habitat will be a combination of preserving occupied and potentially occupied habitat at a 2:1 ratio and creating additional habitat at a 1:1 ratio, meeting CDFG's requirements of an approved mitigation "bank." If surveys find that fairy shrimp are not present in the ponds, a 1:1 replacement ratio would be required at a minimum. The amount of seasonal wetland actually created would be determined in consultation with the CDFG.

Surveys to establish presence or absence of the California red-legged frog conducted according to the February 18, 1997 *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* would be required by the USFWS. If California red-legged frog and its critical habitat elements are found to be absent, no further

mitigation would be required. An Endangered Species Act Section 7 consultation would be required for impacts to California red-legged frog and its critical habitat elements, if found, and mitigation would be required. A California red-legged frog management plan and monitoring program would be required as part of the mitigation, if the species is present. Accordingly, California red-legged frog management practices contained in Section 2.0 of the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook* would be implemented on the selected project site.

Mitigates:	Impact 3.2.1-2 (I)
Implementation:	Make a condition of property acquisition.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-3

Implementation of the Altamont Water Treatment Plant project could result in direct or indirect impacts to California tiger salamanders, their eggs, larvae, and suitable aquatic and upland habitat, should the species occur on the selected site. (PS)

EIP biologists observed no eggs, adults, or larvae of California tiger salamanders on Dyer Road Site #1. However, residents of Dyer Road have observed salamanders in the vicinity of the site. Potential breeding habitat for the species occurs in the vernal ponds on Dyer Road Site #1, and in the stock pond west of Dyer Road Site #5. Burrows providing potential upland estivation sites occur on both Dyer Road sites. However, the presence of predatory fish and bullfrogs in the stock pond west of Dyer Road Site #5 create conditions unfavorable for successful breeding of the species in the pond. The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.3-3

Project design should avoid direct impacts to the vernal ponds on Dyer Road Site #1, should not site any portion of the facility or associated infrastructure within 300 feet of a pond without consultation with the USFWS and the CDFG, should avoid changes in the hydrologic regime, and should avoid siltation or pollution of the ponds during construction or operation of the facility.

One year of surveys for adult California tiger salamander (nocturnal surveys) and a second year of larval surveys must be completed according to CDFG protocol before it can be concluded that the California tiger salamander is not present on the selected site. If an absence finding is determined and accepted by the USFWS, no further mitigation for California tiger salamander would be required. If the species is found on the selected site during the surveys, the mitigation outlined below should be implemented to offset impacts to a level that would be considered insignificant pursuant to the California Environmental Quality Act.

Following CDFG's requirements, all impacts to California tiger salamander estivation and breeding habitat on the selected site should be replaced or preserved at a 1:1 ratio. Specifically, for each acre of estivation habitat impacted, 1 acre of existing estivation habitat would be preserved. For each acre of breeding habitat impacted, 1 acre of extant breeding habitat would be preserved and/or created in extant California tiger salamander estivation habitat. All preservation would be in perpetuity via a conservation easement. Barriers to guide salamanders searching for estivation habitat away from development should be constructed under direction of a qualified biologist in accordance with the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook*.

Mitigates:	Impact 3.2.1-3 (I)
Implementation:	Make a condition of property acquisition.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-4

The Altamont Water Treatment Plant project could result in direct or indirect impacts to burrowing owls (Federal Species of Concern, California Species of Concern) which are known to occur in the project region (but not observed on any of the proposed project sites), if they occupy the project sites prior to construction. (PS)

Burrowing owls nest in the burrows of small mammals and in small culverts in open grassland, the dominant plant community in the project area. Although no burrowing owls nor their burrows have been observed on the possible water treatment plant sites, they are a mobile species known to occur within the vicinity and could occupy any of the sites prior to project construction. Consequently, without mitigation, there is a potential for loss of

burrowing owl habitat. Destruction of active owl burrows or disturbance of owls on-site or immediately adjacent to the site would be considered to be a significant impact. The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-4

Burrowing owl management practices applicable to the selected site are contained in Section 4.0 of the *North Livermore Specific Plan Resource Conservation Program - Management Practices Handbook*. Zone 7 would be responsible for conducting Phase II burrow surveys by qualified biologists in accordance with methods detailed in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium and the CDFG *Staff Report on Burrowing Owls*. The surveys would be conducted within the project impact area and a 150-foot-wide buffer no more than 30 days prior to ground disturbance. If suitable burrows were found, Zone 7 would be responsible for conducting Phase III burrowing owl surveys, census, and mapping using qualified biologists, in accordance with the survey protocol. If burrowing owls are not found in the impact area, or buffer zone during those surveys, there would be no impact and no further action would be required. If owls were found to occupy the site or buffer zone, the following measures would be required in consultation with CDFG. Implementation of these measures would reduce impacts to burrowing owls to an insignificant level.

Occupied burrows would not be disturbed during the nesting season (from February 1 through August 31) unless the CDFG verifies that the owls have not yet begun egg-laying and incubation or that the juveniles are foraging independently and are capable of independent survival.

A minimum of 6.5 acres of foraging habitat contiguous with burrows occupied within the last 3 years would be maintained under a conservation easement per pair of burrowing owls (or unpaired resident single bird) found on the site or within the buffer zone.

In addition to maintaining foraging habitat, occupied burrows in the impact area or buffer should be avoided by not allowing disturbance within 160 feet during the non-breeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31).

If it is not feasible to avoid the burrows and they must be destroyed for project development, disturbance should occur only outside of the nesting season and after owls have been relocated (preferably passively) to an adjacent or nearby

burrow enhancement area in close coordination with the CDFG. In burrow enhancement areas, natural burrows should be enhanced by enlarging or clearing of debris, or artificial burrows shall be created in suitable burrowing owl habitat, both at a ratio of 1:1. A 5-year monitoring program should be implemented to document successful attainment of the performance criteria.

Performance criteria for success should include measures to ensure that no owls are killed or injured, no nests nor eggs are destroyed, taken, nor possessed, nor that any disturbance occurs which results in nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young). Any of these circumstances are defined as illegal "take" under both federal and State migratory bird treaty laws.

Mitigates:	Impact 3.2.1-4 (I)
Implementation:	Make a condition of property acquisition.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-5

The Altamont Water Treatment Plant project could result in the direct or indirect loss of breeding habitat for sensitive bird species, including the white-tailed kite, California horned lark, and loggerhead shrike. (PS)

The majority of the habitat on the possible sites is non-native grassland, which is common to the area and is used as foraging habitat by granivorous (seed-eating) and insectivorous birds. Although no breeding pairs or nests were observed, removal of grassland for construction of the project could result in occasional or long-term loss or utilization of breeding habitat for the California horned lark and foraging habitat for the loggerhead shrike and white-tailed kite. Breeding habitat for the raptors does not occur on any of the possible sites.

Removal of grassland vegetation for construction of the project or could result in a "take" of horned larks resulting from nest abandonment and/or loss of reproductive effort. This would be a violation of Sections 3503, 3503.5, 3513, and 3800 of the State of California Fish and Game Code which prohibit the "take, possession, or destruction of birds, their nests, or eggs."

The CDFG is concerned primarily with breeding habitat for this species. The California horned lark subspecies is a year-long resident in most open habitats of California and breeds from March through July, with peak activity in May. Nests are solitary and built on the

ground usually under a tuft of grass, near small rocks or a clod of manure. Birds often leave nests when intruders approach closer than 100 yards, returning after the intruder has left. After breeding, horned larks become very gregarious, often being seen in large flocks that forage and roost together. At this time, other migrant horned larks from outside California also may join the flocks. Implementation of the following measure, recommended by the EIR consultant, would reduce impacts to all bird species to an insignificant level.

Mitigation Measure 3.2.1-5

If work on the selected site would occur during the months of April through July, Zone 7 would conduct a preconstruction survey for nesting California horned larks in the 30-day period prior to construction. If nesting California horned larks were found on the project site, a 500-foot buffer would be established around the nest site(s), and no grading or construction activity would occur within the buffer zone until it is determined by a qualified ornithologist that the young have fledged, typically by July.

Mitigates:	Impact 3.2.1-5 (I)
Implementation:	Include in grading plans and specifications and make a condition of the construction contract.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-6

Site preparation, construction, and operation of the proposed project could have direct and indirect effects on vernal pool crustaceans, including the longhorn fairy shrimp, vernal pool fairy shrimp, California linderiella, and the vernal pool tadpole shrimp, should any of these species occur in the vernal ponds on Dyer Road Site #1 or seasonal roadside ditches within the transmission pipelines corridors. (PS)
The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-6

Project design should avoid filling of vernal ponds or ditches. A 300-foot buffer from the ordinary high water marks of the ponds should be observed. Grading for buildings and roads should avoid alteration to the hydrologic regime. Best Management Practices during construction would avoid contamination of the ponds with silt or

toxins. Preventive measures should be practiced during operation of the water treatment plant to avoid potential discharge of contaminants into the ponds. Monitoring of the ponds should be conducted during construction and for the first 5 years of operation to ensure that no silt or toxins are present.

Mitigates:	Impact 3.2.1-6 (I)
Implementation:	Include in design and specifications for the project.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-7

Construction of the proposed project could have direct and indirect effects upon the hydrology and aquatic habitat quality of the vernal ponds on Dyer Road Site #1, two drainages on Dyer Road Site #5, and roadside ditches within the transmission pipelines corridors. (PS)

The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.3-7

Siting of the proposed facility should avoid fill of wetlands on Dyer Road Sites #1 and the seasonal drainage on Dyer Road Site #5, and the potential fill of wetlands within the transmission pipelines corridors.

Implement Mitigation Measures 3.2.3-1 (Hydrology) and 3.2.4-1 (Water Quality) together with the development of a monitoring program (Mitigation Measure 3.2.1-6).

Mitigates:	Impact 3.2.1-7 (I)
Implementation:	Include in design and specifications for the project.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

Impact 3.2.1-8

Noise and human activity resulting from construction or operation of the Altamont Water Treatment Plant project would not be expected to have long-term adverse effects on wildlife species occurring on the selected site. (I)

Noise associated with construction would be a temporary impact. Noise associated with operation of the water treatment plant would become an on-going condition which would be reduced through mitigation measures listed in Section 3.2.7, Noise. In addition to noise associated with the operation of the water treatment plant, increased traffic noise and human activity would occur. Wildlife species and individuals display varying levels of sensitivity and habituation to noise. Those species most sensitive to noise would avoid the site during construction and most of the time during operation of the water treatment plant. Because the proposed Altamont WTP would occupy a small area, and similar habitat is common in the vicinity, this would be an insignificant impact.

Mitigation Measure 3.2.1-8

None required. (I)

Impact 3.2.1-9

Grading activities during project construction and the establishment of project landscaping could result in the introduction of undesirable invasive non-native plant species to the project site and adjacent areas. (PS)

Soil disturbance could result in the spontaneous growth of "opportunist" or weedy species that spread aggressively into former naturalized areas. As a number of invasive exotic weeds are already present in disturbed habitats in the North Livermore area, there is a high potential that seeds of these species could colonize newly disturbed sites. Certain non-native plant species commonly used in landscaping discourage regeneration or growth of desirable native vegetation. Non-native plant species do not provide foraging habitat that is as valuable for resident wildlife species as foraging habitat provided by native plant species. The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-9

The potential establishment and expansion of exotic plant species into newly-graded areas should be minimized by seeding disturbed areas with a native grassland mix applied in conjunction with mulch and tackifier as soon as grading activities are completed. Landscaping on the site should contain as much native California species of trees, shrubs, and groundcovers appropriate to Alameda County and the project vicinity as possible. This would provide foraging opportunities for native wildlife. Appropriate native species include trees such as coast live oaks; shrubs such as blue elderberry, toyon, coffeeberry, and coyote brush; and native grasses, such as purple and foothill needlegrass.

Mitigates:	Impact 3.2.1-9 (I)
Implementation:	Include in design and specifications for the project.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

NOTES – Biological Resources

1. Lanphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

2. Camp Dresser & McKee, *Treated Water Facilities Master Plan—Final Report,* February 2000.

3. Environmental Science Associates, *Zone 7 Water Agency Water Supply Planning Program Draft EIR,* SCH #199804 1040, January 1999, prepared for Zone 7 Water Agency.

4. EIP Associates, *Scenic Vista Project*, 1998.

5. LSA Associates, *DEIR-Laguna Palisades Property,* 1995.

6. LSA Associates, *Preliminary Biological Assessment-South Livermore Valley Plan,* 1991.

7. California Department of Fish and Game - Natural Heritage Division, California Natural Diversity Data Base, January 5, 2000

8. California Native Plant Society, Electronic Inventory.

9. Code of Federal Regulations, *Wetlands definition,* CE Federal Register, 1982 and EPA Federal Register, 1980.

10. Code of Federal Regulations, *Final Notice of Issuance and Modification of Nationwide Permits,* 65 CFR 12818-12899, Volume 65(47), March 9, 2000.

11. California Endangered Species Act, 14 CCR 670.5.

12. Public Resources Code, Section 21000 et seq.

13. Migratory Bird Treaty Act, 1918.

14. California Department of Fish and Game, *Preliminary Descriptions of the Terrestrial Natural Communities of California,* Robert F. Holland, 1986.

15. California Department of Fish and Game - Natural Heritage Division, California Natural Diversity Data Base, January 5, 2000.

16. California Native Plant Society, Electronic Inventory.

17. California Department of Fish and Game - Natural Heritage Division, California Natural Diversity Data Base, January 5, 2000.

18. Code of Federal Regulations, *Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the California Red-Legged Frog,* 50 CFR Part 17, Volume 65 (176), September 11, 2000.

19. California Burrowing Owl Consortium, *Burrowing Owl Survey Protocol and Mitigation Guidelines,* April 1993.

20. Lanphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and II,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

3.2.2 SOILS, GEOLOGY AND SEISMICITY

Introduction

Soil, geology and seismicity conditions are important issues for all development projects in the greater San Francisco Bay Area. They are particularly important in an area like the Livermore Valley where faults and hillslopes pose potential seismic and landsliding concerns. Development projects have little or no effect on the geological structure of the Valley, but most of them, including the proposed Altamont Water Treatment Plant (WTP), would have some effect on soils and topography. Some development projects are affected by certain geologic processes, such as erosion or soil expansion, and all are subject to seismic groundshaking. There are three purposes in reviewing the soils, geology and seismicity of a project site: (1) to identify potentially hazardous conditions, such as on-site Earthquake Fault Zones; (2) to identify potential impacts of the proposed project, such as grading; and (3) to provide information that will help Zone 7 decision-makers reduce, eliminate or avoid these conditions and impacts.

Major Sources of Information

Unpublished sources of information for this section of the EIR include the comments received at, and subsequent to, the February 2000 Scoping Meeting, and site reconnaissance conducted by EIP Associates during the preparation of this EIR. Published sources include United States Geological Survey, United States Soil Conservation Service, California Division of Mines and Geology, and Alameda County reports and maps that address soils, geologic, and seismic conditions affecting the Livermore Valley.

SETTING

Regional Geology

The regional geologic framework of the San Francisco Bay Area (Figure 3.2.2-1) can be understood through the theory of plate tectonics. Earth's mantle is composed of several large plates that move relative to each other. The San Andreas Fault System forms the junction of two such plates. The plate on the west side of the fault system is moving north relative to the North American plate on the east side: the geologic formations of the Livermore Valley are on

the North American plate. One of the results of plate movements is the regional rock deformation that is expressed in the general northwest trend of faults, valleys and ridges in the Bay Area. This is apparent in the orientation of such features as the East Bay and Altamont Ranges and the Livermore Valley itself. Another result of plate movement is the regional seismicity that Alameda County has in common with the rest of the Bay Area.

The Livermore Valley is dominated by alluvial deposits of various ages. Underlying these alluvial deposits are the sedimentary rocks of the Miocene Cierbo formation (primarily marine sandstone), and the shales and sandstones of the Cretaceous Panoche formation, both part of the Great Valley Sequence. Both the Cierbo and Panoche formations are prone to slope instabilities. The Greenville fault traverses the southwest margin of the project area; it offsets and deforms bedrock units at and near the ground surface. The project area is typical of the Livermore Valley, consisting of relatively thin alluvial topsoils underlain by fractured bedrock.

Regional Seismicity

The regional seismic context is an important consideration because the forces that affect the project area are regional in nature: that is, they are generated off-site, outside the immediate area, or outside Alameda County. However, the effects of these forces must be accommodated within the limits of the project, in compliance with regulations and guidelines established by the State and County. Figure 3.2.2-1 is a regional map showing the general geology of the Bay Area, the position of the major fault zones, and the location of the project in relation to these features. Table 3.2.2-1 contains current information about the estimated parameters for known faults affecting the Livermore Valley area. Terms that may be unfamiliar are defined in a glossary at the end of this section.

Alameda County and the rest of the Bay Area are in one of the most active seismic regions in the United States. Each year, low- and moderate-magnitude earthquakes occurring within or near the Bay Area are felt by residents of the County. Since the mid-nineteenth century, hundreds of earthquakes have been felt in Alameda County. Three of these temblors caused some damage in the County during the Greenville earthquake sequence of 1980. That series of earthquakes caused minor ground surface rupture in a zone extending about 3 miles from the I-580 Vasco Road overpass. The Loma Prieta earthquake of October 17, 1989, on the San Andreas fault caused severe damage throughout much of the Bay Area, but relatively minor damage in Alameda County. The major fault zones of the San Andreas Fault System (including the Greenville, Hayward and Calaveras faults) were the source of these earthquakes,

TABLE 3.2.2-1
ESTIMATED MAXIMUM PARAMETERS
FOR MAJOR KNOWN FAULTS AFFECTING LIVERMORE VALLEY

Parameter	Fault			
	Greenville	San Andreas	Hayward	Calaveras
Moment Magnitude[1]	6.8	7.1	7.3	6.9
Maximum Intensity (MMI)[2]	V-VI	V-VI	VII-VIII	V-VII
Peak Horizontal Accelerations in Rock and Stiff Soil (Gravity)[3]	0.6	0.2 - 0.3	0.3 - 0.4	0.3-0.4
Approximate Distance and Direction from Project Area to Fault (Miles)	0-3W	33-36SW	16-19W	8-11SW

Notes:

1. For the purposes of describing the size of the design (or scenario) earthquake of a particular fault segment, **moment magnitude** (M_w) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter Scale "saturates" at the higher magnitudes; that is, the Richter scale has difficulty differentiating the size of earthquakes above magnitude 7.5. The M_w scale is proportional to the area of the fault surface that has slipped, and thus, is directly related to the length of the fault segment. Although the numbers appear lower than the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.

2. Estimated Modified Mercalli Intensity damage level based on relationships developed by Perkins and Boatwright, 1995.

3. Estimates based on relationships developed by Seed and Idriss, 1972, Joyner and Boore, 1981, Campbell and Sadigh, 1983.

Source: EIP Associates, 1999.

and are expected to be the source of future earthquakes.[1] Even though no known active fault traces pass through the potential water treatment plant sites, it is necessary to design structures and facilities to withstand the anticipated effects of seismic vibration from regional, as well as nearby, sources.[2] The East County Area Plan (ECAP) identifies the Greenville and Calaveras faults as the two largest active faults that traverse the Plan Area, a region that includes the three potential water treatment plant site locations.

Following the Loma Prieta earthquake, the United States Geological Survey estimated the probability of at least one large earthquake (Moment Magnitude M_w 7 or greater) in the San Francisco Bay region within the 30-year period between 1990 and 2020 at about 67 percent.[3]

On the East County segment of the Greenville fault, the probability is estimated at less than 2 percent that a large earthquake would occur within that time-frame.[4] Earthquakes of this magnitude are sufficient to create horizontal ground accelerations in bedrock and in stiff unconsolidated sediments severe enough to cause major damage to structures and foundations not designed specifically to resist the lateral forces generated by earthquakes, and to underground utility lines not designed with sufficient flexibility to accommodate expected seismic ground motion.[5]

Altamont Area Characteristics

Topography

The project area is separated from the San Francisco Bay Plain by the East Bay Hills, and extends eastward to the western boundary of San Joaquin County. The East Bay Hills and other hills of eastern Alameda County are part of the Diablo Range, which in turn is part of the Coast Ranges. Narrow, steep-sided valleys and canyons are interspersed throughout the ridge system. This physiography is not unique to this portion of the Coast Range. The Diablo Range consists of a series of ridges, which run in a northwesterly direction paralleling the Pacific Coast; the basic topography—rolling to steep mountains separated by creek or river valleys—is typical of many locations in the Coast Range. The rugged profile of the landscape is primarily a function of tectonics; the action of running water is the secondary force contributing to the area's surface features.

Geologic Units

The valley of the East County planning area is underlain by unconsolidated Quaternary deposits up to 3 million years in age. These deposits consist of alluvial sediments that contain stream-deposited intermixtures of sands, gravels, silts, and clays. The Quaternary deposits are, in turn, underlain by sedimentary, metamorphic and igneous rocks up to 150 million years in age. Bedrock of various ages and types underlies the East Bay Hills and the Diablo Range. Almost all the hills have a mantle of topsoil and weathered bedrock; the soil materials vary in depth from a few feet to several tens of feet.

Faults

Faults are classified by the State as "active," "potentially active," "activity uncertain," and "inactive." An active fault is one that has shown some movement within historic time (the last few hundred years), and potential for activity in the near future. A potentially active fault is one which has not ruptured in historic time, but shows evidence that a rupture has occurred in the recent geological past and could happen in the future. A fault classified as activity uncertain is one for which there is insufficient data concerning the level of activity or recurrence of activity. An inactive fault is one for which there is no evidence of activity in recent geologic time.

The Greenville and Calaveras faults are the two largest faults that actually pass through the East County. The Greenville fault, which is classified as active, traverses the central portion of the planning area in a northwest direction, generally following the western base of the Altamont Hills. The Calaveras fault, also considered active, traverses the western portion of the planning area in a northwest direction, following the eastern edge of the East Bay Hills. The Hayward fault, located along the western margin of the East Bay Hills, is not within the planning area, but is classified as active and would significantly affect the East County in the event of major seismic activity.

Geo-Seismic Hazards and Constraints[6]

Groundshaking

Earthquake-induced groundshaking is a seismic hazard that can result in liquefaction, lurching and lateral spreading of soils, and landsliding of soil and rock. Differential settlement can occur at the ground surface because of subsurface liquefaction and densification from groundshaking. Sufficiently intense groundshaking can move buildings off their foundations, or cause the foundations to crack or crumble. Adherence to modern building codes has substantially reduced these hazards. The entire project area is subject to seismically-induced groundshaking.

Seismically-Induced Landslides and Slope Stability

Landslides occur when shear stress of a soil or rock mass exceeds its shear strength. Shear stress can be increased by adding to the weight of soil or rock mass through saturation or loading. Shear strength can be reduced by erosion or by grading at the toe of a slide mass.

Failure can be caused by an increase in shear stress or a decrease in shear strength. Zones of low shear strength often are associated with the presence of expansive clay soils and weak bedrock units, as are found on the potential water treatment plant sites.

Earthquake-induced groundshaking can cause activation of new or previously existing landslides and other slope instabilities, especially during periods of high groundwater. Failure of steep slopes in the vicinity of the water treatment plant sites and the collapse of stream banks could occur widely during a major earthquake, especially if the quake occurred on the Greenville or Calaveras fault. Areas with steep slopes would be most susceptible to landslides. Two of the three potential water treatment plant sites have slopes between 30 and 50 percent. Dyer Road Site #1 is nearly level.

Liquefaction, Lateral Spreading and Differential Settlement

Dyer Road Site #1 is underlain by unconsolidated sediment that would be subject to lurching or spreading under severe groundshaking conditions. The northern slopes on Dyer Road Site #5 may be subject to lateral spreading if they are not closely underlain by bedrock. The alluvial deposits on these sites appear to contain a mix of fine-grained soil materials that would resist liquefaction. However, pockets of loose material may exist on Dyer Road Site #1 and Dyer Road Site #5 that would be subject to liquefaction or settlement.

Surface Rupture

Rupture of the ground surface along the trace of a fault can be expected to occur during seismic events in the active Greenville Fault Zone. Portions of Laughlin Road Site #3 are in the Alquist-Priolo Earthquake Fault Zone for this fault, but no known active fault traces occur on the sites.

Site-Specific Characteristics[7]

<u>Laughlin Road Site #3</u>

Laughlin Road Site #3 is located on an upland ridge underlain by Panoche formation sandstone. This site is bounded by steep canyon walls and range-front slopes that rise from about 600 feet elevation at their base to between 700 and 750 feet elevation along the edge of the ridge upland surface. A level or benched site of up to 20 acres could be created by grading to accommodate the proposed Altamont WTP. The north margin of the site would

abut the east shoulder of the BFI landfill outer slope, which would rise 50 feet or more above the likely elevation of the water treatment plant building pad. A gully between the BFI landfill property and Laughlin Road Site #3 forms a topographic buffer between the two sites. Pipelines and utilities leading from this site would have to cross the Greenville fault, which is adjacent to and southwest of the site.

Dyer Road Site #5

Dyer Road Site #5 is situated in the lower part of a broad upland valley located northwest of the north end of Dyer Road. Dyer Road Site #5 is underlain by the Panoche formation's clastic, sedimentary rocks consisting mostly of sandstone. The Panoche formation rocks are locally faulted, but the faults do not appear to be related to the contemporary tectonism that affects this region. Because of its elevation, the site would not be expected to encounter any problems associated with shallow groundwater. Although this site lies within a region of potentially strong ground motion arising from the nearby Greenville fault, no evident geohazards or adverse geotechnical conditions were observed on the site.

Dyer Road Site #1

Dyer Road Site #1 is situated at the head of the "Dyer Road Valley" at the divide between this south-draining valley and the steeper north-draining canyon of Brushy Creek. The site occupies the axis of a gently sloping swale and is confined between the embankment carrying the South Bay Aqueduct to the east and Dyer Road to the west. The swale is underlain by alluvium derived from the upland valley to the northwest. This valley formerly drained to the Dyer Road Valley, but its drainage was captured by and diverted into the headwaters of Brushy Creek. Although this site lies within a region of potentially strong ground motion arising from the nearby Greenville fault, no evident geohazards or adverse geotechnical conditions were observed on the site.

Applicable Policies and Regulations

State Policies and Regulations

The major State legislation regarding earthquake fault zones is the Alquist-Priolo Earthquake Fault Zoning Act. In 1972, the State of California began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active faults to reduce fault-rupture risks to structures for human occupancy.[8] The Alquist-Priolo Earthquake Fault Zone closest to the three potential water treatment plant sites is the Greenville fault, which crosses within a portion of Laughlin Road Site #3 and is about 3 miles from the Dyer Road sites. The Calaveras fault is about 10 miles to the southwest.

The major State regulations regarding geo-seismic hazards, other than surface faulting, are contained in the 1995 California Building Code (CBC), Title 24, California Code of Regulations, as adopted by Alameda County. The CBC applies to public buildings and a large percentage of private buildings in the State. It is based on the current Uniform Building Code used in about half the United States, but contains Additions, Amendments and Repeals that are specific to building conditions and structural requirements in the State of California.[9] Local codes are permitted to be more stringent than Title 24, but are required to be no less stringent. Chapter 16 of the CBC deals with General Design Requirements, including (but not limited to) regulations governing seismically resistant construction. Chapters 18 and A33 deal with foundations, retaining walls, excavation and grading, including (but not limited to) requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage and erosion control. The Livermore Valley is in CBC Seismic Zone 4 (as is about 45 percent of the State) and contains known active fault segments within 2 miles of the proposed Altamont WTP sites. Therefore, the site design would be required to meet the most stringent CBC construction standards.

Setback From Active Fault Segments

No structure intended for human occupancy is permitted to be built within 50 feet on either side of active segments of the Greenville fault, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, unless an appropriate geologic investigation by a Certified Engineering Geologist registered in the State of California determines development to be safe and demonstrates that the hazard of surface displacement is low.

Investigation for Potential Fault Traces

Similarly, development within 200 feet of any mapped potential fault trace may be approved only after an appropriate geologic investigation demonstrates that the hazard of surface fault rupture is not present. If the study finds a geologic feature that suggests that surface fault rupture could occur, a 50-foot setback from the feature must be maintained, or a lesser setback, if it can be demonstrated that the hazard of surface displacement is low.

Resistance to Groundshaking

All structures must be built to seismic standards of the most recent edition of the California Building Code effective at the time of development, and be designed and constructed to withstand groundshaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse of the structure. Based on the Public Safety element of the East County Area Plan, it is recommended that the Altamont WTP be considered a critical facility. It should be designed and constructed to remain standing following a major earthquake. A recovery plan should be developed to enable the water treatment plant to become functional as soon as possible after the earthquake.

Related Policies and Regulations

Alameda County Policies and Regulations

County policies to mitigate geo-seismic hazards are addressed in the Geologic Hazards Section of the Public Safety Element of ECAP, a portion of the Alameda County General Plan adopted by the Alameda County Board of Supervisors in May 1994. This Section discusses procedures intended to reduce or eliminate the impacts of development in geotechnically hazardous areas and promote emergency preparedness and response. It is recommended that this Section be used as a guide for developing an earthquake recovery plan at the Altamont WTP. Other pertinent County regulations to be considered include the following:

- Section 2905 of the Alameda County Building Code requires applicants for new construction to submit soils and/or geologic reports for sites affected by a number of geologic and soils conditions, including the presence of primary and secondary seismic hazards.

- The County Grading Ordinance, adopted in 1982, establishes minimum standards for grading and excavation, and for control of erosion and sediment.

- The County's Emergency Operations Plan includes an "Earthquake Response Directive" that applies to all portions of the planning area.

City of Livermore Policies and Regulations

The three potential water treatment plant sites are within the City of Livermore's Sphere of Influence as delineated in ECAP. Although the sites are northeast of the North Livermore Specific Plan Area boundary, information in that document is applicable to the general project area. It may be used to provide guidance for phased or coordinated development and resource protection in Eastern Alameda County, and should be considered during the development of any of the potential Altamont WTP sites.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Section 15382 of the California Environmental Quality Act Guidelines defines a significant effect on the environment as "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Further, Section 15126(a) of the CEQA Guidelines stipulates that the Environmental Impact Report analyze "…significant environmental effects the project might cause by bringing development and people into the area affected."[10] The example used in the CEQA Guidelines is that of a subdivision astride an active fault having the effect of attracting people to an area where they would be exposed to seismic hazards. The Guidelines lead to two criteria:

- The basic criterion applied to the analysis of the impacts of excavation, construction and grading, is whether or not implementation of the project, as proposed, would create a fundamental adverse change in the soil, geologic, or seismic conditions that would last beyond the initial development period.

- The basic criterion applied to the analysis of the geo-seismic hazards that could endanger the user of the project site, or adjacent areas, during the lifetime of the project is whether or not implementation of the project, as proposed, would increase exposure of people in the vicinity to unmitigated seismic hazards, soil or slope instability hazards, or other hazardous geotechnical conditions.

Impacts in either of these categories would be considered unavoidable significant effects of the project, if they could not be (a) reduced to an acceptable level of risk, (b) eliminated, or (c) avoided, by using existing techniques, generally recognized by geotechnical consultants in the Bay Area to be applicable and feasible.

Impact 3.2.2-1

Laughlin Road Site #3 could be subject to the damaging effects of surface rupture along the Greenville fault zone. (PS)

The southwest portion of Laughlin Road Site #3 is in the Alquist-Priolo Earthquake Fault Zone for the Greenville fault. Placement of a water treatment plant on this potential site requires avoidance of fault segments within the Earthquake Fault Zone to reduce potential damage from surface rupture. Implementation of the following mitigation measure, proposed as part of the project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.2-1

All structures are required to be built to seismic standards of the most recent edition of the CBC, as mentioned in the *State Policies and Regulations* section of this EIR.

As part of the risk reduction measures, all construction should incorporate gas cutoff valves, anchoring of heavy equipment to prevent movement, and other appropriate groundshaking risk reduction techniques deemed feasible during the design review phase of the project.

Mitigates:	Impact 3.2.2-1 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.2-2

The entire project area will be subject to potentially damaging seismically induced groundshaking during major earthquakes on nearby active faults. (PS)

Earthquakes generate seismic waves through the earth that propagate outward from the hypocenter (point of rupture within the crust). These seismic waves cause ground motions and groundshaking at and below the ground surface. As seismic waves pass from stronger bedrock to weaker alluvial and water-saturated materials, velocity of the waves is reduced, but amplitude (height) of the waves is increased, so that ground accelerations are greater in alluvial areas. Structures located on solid rock generally sustain less damage than those on alluvial or other recent sedimentary deposits. The potential Altamont WTP sites consist of alluvial silty clays over bedrock. In some portions of Laughlin Road Site #3 and Dyer Road Site #5 the soil cover is so thin that bedrock is exposed. Although each of the sites would be subject to groundshaking, the associated hazards differ. Liquefaction, lurching, differential settlement, and lateral spreading are potential concerns at Dyer Road Site #5 and Dyer Road Site #1. Landsliding of soil and rock are potential concerns at Laughlin Road Site #3 and Dyer Road Site #5. Groundshaking may cause damage to structures, depending on numerous factors including building materials, foundation support, anchoring, etc. The CBC addresses groundshaking and related seismic considerations, and provides minimum design standards to resist seismic hazards. The following mitigation measures, proposed as part of the project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.2-2

Prior to final plan approval, all development proposed within areas of older alluvial deposits would be subject to site-specific geologic and geotechnical investigations that address the potential for groundshaking, liquefaction and densification of subsurface soils.

- Investigations must be performed under direction of a Registered Geotechnical Engineer (RGE) and/or a Certified Engineering Geologist (CEG) registered in the State of California.

- Development should be approved only after a demonstration that liquefaction/densification are unlikely to occur, or that appropriate structural measures have been incorporated into the project design to resist them.

Prior to construction, geotechnical investigations would be performed for all areas proposed to be paved (foundations, access roads, etc.) to identify potential areas of expansive soils. If such soils are found, the report would present site-specific recommendations for design and construction that would limit the effect of expansive soils. Such recommendations may include: increased thickness of road base; greater

foundation widths or depths; pre-saturation of fill soils and placement above optimum moisture content; placing non-expansive imported soil in the upper portion of building pads; spread footings, pad foundations, or footing wall foundations; or a combination of these and other appropriate methods.

Mitigates:	Impact 3.2.2-2 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans, and make part of the construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.2-3

Grading, excavation and construction activities have the potential to increase erosion of soil from the site, and subsequent deposition of soil particles in area creeks, the wetland areas on Dyer Road Site #1, and larger water bodies downstream of the sites. (PS)

Chapter A33 of the CBC regulates general grading activities, including those related to construction. During the grading and construction period, the potentially erosive effects of water leaving the construction sites would be of concern. Runoff during the grading period could carry particles of fill from the grading or construction sites, or could erode soil downgradient, if the flow were not controlled. The loss of the material by erosion may not be a significant impact in itself; however, the re-deposition of eroded material in area creeks or in the wetland areas on Dyer Road Site #1 could create turbidity, reduce wildlife habitat, and reduce the carrying capacity of waterways. Erosive conditions created during the grading period can persist into the operations period.

Mitigation Measure 3.2.2-3

Implement Mitigation Measure 3.2.3-1 in Section 3.2.3, Hydrology.

Mitigates:	Impact 3.2.2-3 (I)
Implementation:	Include in project design and make part of the grading and construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Glossary

Alquist-Priolo Earthquake Fault Zone: In 1972 the State of California began delineating special studies zones (called Earthquake Fault Zones since January 1994) around active and potentially active faults in the state. The zones are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction within the Earthquake Fault Zone is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

Characteristic Earthquake: The moment magnitude (see below) of the seismic event considered representative of a particular fault segment, based on seismologic observations and statistical analysis of the probability that a larger earthquake would not be generated during a given time frame. In the Bay Area, the characteristic earthquake for the Peninsula segment of the San Andreas fault has a moment magnitude (M_w) of 7.1; the entire Hayward fault, a M_w of 7.3; the northern segment of the Calaveras fault, M_w 6.9; and the Greenville fault, M_w 6.8. The term "characteristic earthquake" replaces the term "maximum credible earthquake" (see below) as a more reliable descriptor of future fault activity.

Clastic: A rock or sediment composed principally of broken fragments derived from pre-existing rocks or minerals, and transported from their place of origin.

Horizontal Ground Acceleration: The speed at which soil or rock materials are displaced by seismic waves. It is measured as a percentage of the acceleration of gravity (0.5g = 50 percent of 32 feet per second squared, expressed as an horizontal force). *Peak* horizontal ground acceleration is the maximum acceleration expected from the characteristic earthquake predicted to affect a given area. *Repeatable* acceleration refers to the acceleration resulting from multiple seismic shocks. *Sustained* acceleration refers to the acceleration produced by continuous seismic shaking from a single, long-duration event.

Maximum Credible Earthquake (MCE): The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework. This term has been replaced by "characteristic earthquake," which is considered a better indicator of probable seismic activity on a given fault segment within a specific time frame.

Modified Mercalli Intensity (MMI) Scale: A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. Effects range from those which are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. Intensity VII frightens most people, and Intensity VIII causes alarm approaching panic. The scale was developed in 1902 by Giuseppi Mercalli for European conditions, adapted in 1931 by American seismologists Harry Wood and Frank Neumann for conditions in North America, and modified in 1958 by Dr. Charles F. Richter to accommodate modern structural design features.

Moment Magnitude (M_w): A logarithmic scale used by modern seismologists to measure the amount of energy released by an earthquake. For the purposes of describing this energy release (i.e. the "size" of the earthquake on a particular fault segment for which seismic-resistant construction must be designed) the moment magnitude (M_w) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter scale "saturates" at the higher magnitudes; that is, the Richter scale has difficulty differentiating the size of earthquakes above M 7.5. The M_w scale is proportional to the area of the fault surface that shifts (slips) during an earthquake, and, thus is directly related to the length of the rupture. It reflects the amount of "work" (in the sense of classical physics) done by the earthquake. Although the numbers of the M_w scale may appear lower than those of the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.

Richter Magnitude Scale: A logarithmic scale developed in 1935 to 1936 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude (M) by the amount of energy released, as opposed to earthquake intensity as determined by local effects o
n people, structures, and earth materials (for which, see Modified Mercalli Intensity Scale). Each whole number on the Richter scale represents a 10-fold increase in amplitude of the waves recorded on a seismogram and about a 31-fold increase in the amount of energy released by the earthquake. Because the Richter scale tends to saturate above M 7.5, it is being replaced in modern seismologic investigations by the moment magnitude (M_w) scale (see above).

NOTES - Soils, Geology and Seismicity

1. a) Jennings, C.W., *Fault Activity Map of California and Adjacent Areas, with Locations and Ages of Recent Volcanic Eruptions*, Geologic Data Map No. 6, California Division of Mines and Geology, 1994, scale 1:750 000, accompanied by 92 pages of explanatory text.

   b) Association of Bay Area Governments, *The San Francisco Bay Area On Shaky Ground*, Publication Number P95001EQK, April 1995, 56 pages, 13 maps, scale 1:1,000,000.

2. Seismology Committee, Structural Engineers Association of California, *Recommended Lateral Force Requirements and Tentative Commentary*, San Francisco, California, 5th edition, revised June 30, 1988, 163 pages, see p. 1.

3. Working Group on California Earthquake Probabilities, *Probabilities of Large Earthquakes in the San Francisco Bay Region, California*, United States Geological Survey Circular 1053, 1990, p. 29.

4. Working Group on California Earthquake Probabilities, *Probabilities of Large Earthquakes in the San Francisco Bay Region, California*, United States Geological Survey Circular 1053, 1990, p. 29.

5. a) R.D. Borcherdt, *et al.*, *Maximum Earthquake Intensity Predicted on a Regional Scale*, United States Geological Survey, Miscellaneous Field Investigations Map MF-709, 1975, scale 1:125,000.

   b) Davis, J.F., J.H. Bennett, G.A. Borchardt, J.E. Kahle, S.J. Rice, and M.A. Silva, *Earthquake Planning Scenario for a Magnitude 8.3 Earthquake on the San Andreas Fault in the San Francisco Bay Area,* California Division of Mines and Geology, Special Publication 61, (1982)

160 pages, 8 maps, scale 1:396,000.

6. SWA Group, *North Livermore Specific Plan Draft Environmental Report—Part 1*, April 2000.

7. Camp Dresser & McKee, *Zone 7 Water Treatment Plant Expansion Master Plan, Technical Memorandum Number 4,* June 1999.

8. *Alquist-Priolo Earthquake Fault Zoning Act*, California Public Resources Code, Division 2, "Geology, Mines and Mining," Chapter 7.5 "Earthquake Fault Zones," Sections 2621 through 2630; signed into law 22 December 1972, amended 1974, 1975, 1976, 1979, 1991, and 1993.

   The purpose of the Act is to regulate development near active faults and thereby reduce the hazards of surface fault rupture. The Act has resulted in the preparation of maps delineating Earthquake Fault Zones which include, among others, recently active segments of the San Andreas, Hayward, Calaveras and Greenville faults. The Zones are revised periodically, and extend 200 to 500 feet on either side of identified active fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of the trace is assumed to be underlain by the fault, unless proven otherwise. The Act provides for special considerations if developments are planned in these areas adjacent to active or potentially active faults. Proposed construction within an Earthquake Fault Zone may be permitted only following the completion of detailed geologic investigations and a fault location report prepared by a California Registered Geologist.

9. International Conference of Building Officials, *Uniform Building Code*, Volumes 1, 2 & 3; Chapter 16, Structural Forces (earthquake provisions); Chapter 18, Foundations and Retaining Walls; Chapter A33, Excavation and Grading, Whittier CA, 1994.

10. Remy, M.H., T.A. Thomas, J.G. Moose and W.F. Manley, *Guide to the California Environmental Quality Act (CEQA)*, July 1999, Solano Press, Point Arena, California, pp. 716 and 680.

3.2.3 HYDROLOGY

Introduction

The Setting section characterizes the existing local and regional hydrologic conditions for the proposed Altamont Water Treatment Plant (WTP) study sites. It describes existing drainage, stream flows, flood hazards, and water quality and groundwater issues. Related plans and policies are discussed, including the East County Area Plan (ECAP), the Alameda County Urban Runoff Clean Water Program, the City of Livermore General Plan, the North Livermore Specific Plan, and the Regional Water Quality Control Board's (RWQCB) recommended Best Management Practices. The Impacts and Mitigation Measures section addresses impacts on hydrological resources, including surface runoff, groundwater resources, and water quality. Construction of water treatment plant facilities, associated roadways, and water supply conduits would have direct and indirect impacts on water resources.

Background information was collected from topographical maps of the area and reports prepared by the Department of Water Resources, the U.S. Geological Survey, the Natural Resources Conservation Service (formerly the Soil Conservation Service), the RWQCB, and the City of Livermore. These data, in conjunction with the results of field surveys by EIP hydrologists in March through June 2000, were used to determine the existing site conditions, on-site resources, drainage routes, and adjacent stream reach conditions. Potential hydrology impacts were determined by assessing what changes would result in stream flow, sediment generation, drainage, groundwater conditions and potential water quality concerns during and following the construction period.

SETTING

Regional Hydrology

The proposed project sites are part of the Altamont Pass region, within the larger Alameda Creek watershed, as shown in Figure 2-2 (in Section 2, Project Description). The three study sites are located in two drainage basins: the Altamont Creek and Brushy Creek watersheds. Two sites, Laughlin Road Site #3 and Dyer Road Site #1, are in the Altamont Creek watershed. The third site, Dyer Road Site #5, is in the Brushy Creek watershed. The Altamont basin drains the Altamont hills in a southwesterly direction. The lands are characterized by moderately to steeply sloping hills (mostly grasslands) with sharply pronounced v-shaped valleys. Brushy Creek drains the Altamont hills in a northerly direction

and contains similar terrain. Flows in both basins generally are confined to defined channels.

With the exception of small channelized reaches and roadside drainage ditches, local creeks in the project area generally are in a natural state. The proposed project sites comprise areas that are tributary to the local creeks, but because they are in hilly terrain at higher elevations, they generally do not contain any well-defined stream channels. However, Dyer Road Site #5 contains an intermittent segment. Dyer Road Site #1 contains ponded water (vernal ponds and stock ponds) during at least part of the year. During storms the rolling topography and grassy swales that occur on all the sites direct overland runoff toward roadside drainages which feed into Altamont Creek or Brushy Creek. Following major storm events, local depressions fill with rain water that slowly infiltrates the predominantly clayey soil, or flows overland to concentrated drainage ways at lower elevations.

Drainage

The three proposed project sites lie on the western edge of the Diablo range within the Livermore Valley (see Figure 2-2). The two sites draining into Altamont Creek are located in the Arroyo Las Positas watershed, a sub-basin of the Alameda Creek watershed; the third site (Dyer Road Site #5) is located at the headwaters of the Brushy Creek watershed that drains to the Delta. The regional hydrology has been described previously by the North Livermore Specific Plan Draft EIR,[1] and the Zone 7 Water Agency Water Supply Planning Program EIR.[2] The regional hydrology information presented in these documents is incorporated by reference and summarized below. Yearly average rainfall for the overall region totals approximately 14 inches.[3] Approximately 90 percent of the mean annual precipitation occurs during winter months. However, monthly and annual rainfall totals have varied considerably over the period of record. For example, over the past 70 years, annual rainfall has been as much as 32 inches. Typically, precipitation exceeds evaporation only in December, January and February; high temperatures throughout the rest of the year result in evaporation rates that far exceed precipitation. The mean annual evapo-transpiration rate is approximately 40 inches per year.[4]

Following periods of substantial rainfall, runoff is rapid on the clayey soils, and stream flow can rise quickly. Stormwater runoff is concentrated rapidly by the network of tributaries in the hill areas that drain the watershed. The tributaries have carved well-defined and incised channels between the hills, though in many locations the banks of these creeks are unstable and eroded. In the valley floor, creeks often become shallow and prone to overbank flooding. Shallow ponding occurs for prolonged periods in depressions and low-elevation areas of the

North Livermore Valley and within the Springtown Alkali Sink following heavy rains.[5]

Prior land use activity in the watershed has modified natural runoff characteristics. Local land development and modification of natural drainages has altered infiltration and runoff rates, changing the timing, distribution and magnitude of surface water and groundwater flow. Intensive grazing practices have converted native perennial grasslands to Mediterranean annual grasses. Historic grazing practices and other associated land uses have increased runoff through surface soil compaction and grassland conversion, contributing to arroyo cutting, de-watering of upland stream valleys, and the degradation of natural riparian communities.[6]

Natural runoff from the two sites draining west flows into roadside drainage ditches leading to Altamont Creek. Stream flow from Altamont Creek flows west through the Springtown Alkali Sink area and into Arroyo las Positas, under I-580 in culverts, and through the City of Livermore to join Arroyo Mocho. Arroyo Mocho drains into the Alamo Canal which parallels I-680 and flows south into Arroyo de la Laguna. Flow from Arroyo de la Laguna enters Alameda Creek near the town of Sunol and turns west, flowing down Niles Canyon where a portion of the water is diverted to Alameda County Water District recharge ponds. The rest of the water enters south San Francisco Bay near Union City.

Natural runoff from Dyer Road Site #5 drains northeast, flowing into Brushy Creek. Brushy Creek flows east through hilly terrain for approximately ten miles before it enters Clifton Court Forebay. Reported 100-year design flow rates vary from 755 cubic feet per second (cfs) to 2,950 cfs depending on the relative position in the watershed.[7] According to the Contra Costa County Flood Control District, there are no records of flooding problems occurring along Brushy Creek in the recent past and there is no information currently available that describes the existing channel capacity.[8]

The Alameda Creek watershed is the largest of all the local watersheds draining into San Francisco Bay. It includes over 700 square miles, ranging south from Mt. Diablo to Mt. Hamilton and east to Altamont Pass. This watershed encompasses the communities of Livermore, Pleasanton, Dublin, San Ramon, and parts of Fremont, Newark and Union City. The headwaters comprise mixed grassland-woodland mountainous terrain. The watershed is typical of the Central California Coast Ranges where major stream flows occur during the rainy season (November through March), and decrease through the summer months.

The proposed project site locations include one ridgeline/upland site (Laughlin Road Site #3) and two gently sloping hillside/valley floor sites (Dyer Road Site #5 and Dyer Road Site #1)

(see Figure 3.2.3-1) north of I-580. Altamont Creek flows through residential and open space areas before its confluence with Alameda Creek, as described above. Brushy Creek flows through almost entirely open space areas before it enters Italian Slough, which flows into Clifton Court Forebay.

As part of the North Livermore Specific Plan proposed infrastructure, an areawide storm drainage system would be constructed to convey storm water from the two sites draining into Altamont Creek. These improvements would include storm drain pipes within proposed roadway alignments, and construction of a new open channel (East Creek) in the eastern portion of the North Livermore Planning Area. Stormwater flows from urbanized portions of the North Livermore Specific Plan Area would be routed to street gutters and open channels to drop inlets connected to an underground system of storm drainage pipes located primarily under proposed roadways. This pipe system would be divided into separate subareas to minimize the distance and convergence of tributary areas, thereby keeping pipe size to a minimum. The largest pipe within any subarea is anticipated to be 54 inches. These storm drain pipes would be designed according to the City of Livermore design standards.[9]

Stream Flows and Flood Hazards

Based on Federal Emergency Management Agency (FEMA) data,[10] the proposed sites are not located within any 100-year floodplains. However, areas further downstream are subject to flood hazards. The flood insurance map (see Figure 3.2.3-1) indicates that Altamont Creek overtops its banks during the 100-year storm event. Overbank flooding occurs from the west side of Vasco Road to the confluence of Arroyo Las Positas and at various locations further downstream. Thus, existing runoff from the proposed sites influences downstream flooding hazards. Overall, flooding is not currently a significant hazard on any of the proposed sites because of their respective positions in the watershed, the small contributing area of their respective sub-basins and the relatively well-defined downstream channels, which normally convey flood flows without overtopping.

A hydrologic model of existing runoff condition has been prepared as part of the North Livermore Specific Plan EIR, using the Army Corps of Engineers HEC-1 Flood Hydrograph numerical method.[11] The HEC-1 model generates a "real time" flow hydrograph that represents runoff conditions at each merge point. As indicated in the North Livermore

Specific Plan EIR, peak runoff rates in Altamont Creek would be reduced as a result of construction of East Creek.

The capacity of Altamont Creek has been reduced considerably by sediment build-up in the channel; the existing 100-year peak flow reported for Altamont Creek as it joins Arroyo Las Positas is 2,765 cfs. Under current conditions this flow rate would result in overbank flooding most notably in areas where considerable sedimentation has occurred (up to 4 feet in some locations). However, the drainage improvements proposed as part of the North Livermore Specific Plan are expected to reduce the 100-year peak flow in Altamont Creek to 2,409 cfs.[12] This projected decrease in peak flow in association with the completion of sediment removal activities associated with the Altamont Creek and Arroyo Las Positas Restoration Project would result in a reduction in flooding impacts. Following sediment removal the channel capacity would support peak flows in all improved channel segments that are designed to Zone 7 standards, although unimproved channel segments may still be subject to flooding impacts.

Water Quality

Historic grazing on each of the proposed facility sites has likely altered the natural hydrology of the site. In general, grazing decreases infiltration, decreases overland flow roughness, increases sediment supply and pollutes runoff water with animal waste. These changes tend to increase flood volumes and peaks, shorten the time to peak flow, increase sediment loads, and decrease water quality. The changes caused by grazing often initiate channel downcutting which works its way upstream, degrading habitat and creating slope instability of existing channel banks. Field observations revealed that creek downcutting is not occurring at any of the proposed sites. The quality of surface runoff from the Alameda Creek Basin is generally good, although surface water quality may be reduced by soil erosion from development or improper land use activities occurring throughout the watershed.[13] Water quality in general is consistent with surrounding undeveloped watersheds.

The region's surface water quality is monitored by the State Water Quality Control Board. The State Board implements a Water Quality Control Plan or Basin Plan to achieve the maximum water quality benefit possible. Under the Basin Plan for the Livermore Region, present beneficial uses listed for Altamont Creek include agricultural and industrial supply, recreation, freshwater habitat, wildlife habitat and groundwater basin recharge. Present and potential water quality problems identified by the RWQCB in the Basin Plan include increased surface runoff, sedimentation, the disposal of municipal wastes and wastewater, and impacts

associated with underground storage tanks.

Surface water quality in the project area is influenced by the three separate sources of water that contribute to the flow within local drainage channels: natural streamflow, stormwater and irrigation runoff, and direct discharges. Natural streamflow is limited, and depends on the slow drainage of groundwater through surface seeps and springs located throughout the upland areas of the watershed. This water generally is free of contamination, although it often contains high concentrations of dissolved minerals and other naturally occurring solids. Stormwater and irrigation runoff enter streams directly as overland flow, carrying the dissolved or suspended residue of both natural and human land uses. This can include sand, silt, clay, organic fertilizers and pesticides, heavy metals, oil and grease, animal waste, decaying organic litter, and debris. Direct discharges into streams generally are made only by industrial plants and wastewater treatment facilities. Such discharges are regulated locally by the RWQCB, which grants permits for waste discharges and enforces the treatment provisions set forth in each permit.

Together with other Alameda County municipal agencies, Zone 7 operations have been covered by a specific National Pollutant Discharge Elimination System (NPDES) permit regulating discharges to storm drains since 1991 (California Regional Water Quality Control Board, San Francisco Bay Region, Order 97-030, NPDES Permit No. CAS0029831, issued to all the members of the Alameda Countywide Clean Water Program including Zone 7 of the Alameda County Flood Control and Water Conservation District, February 19, 1997). The existing NPDES permit requires Zone 7 to comply with the general recommendations and provisions set forth in the Alameda Countywide Stormwater Management Plan. This permit covers stormwater runoff from Zone 7's facilities, as well as discharges from its activities. Therefore, unlike most entities, Zone 7 is not required to make a separate application to the RWQCB for a general construction permit. However, because the development portion of the site would exceed 5 acres, a Storm Water Pollution Prevention Plan (SWPPP) is required (see Impacts and Mitigation Measures).

The sand, silt and clay carried by stormwater runoff are the products of continuing soil erosion within the watershed. As topography flattens, soil is deposited and slowly accumulates. The accumulated material gradually reduces the channel capacity and forces flood waters farther into the surrounding floodplain. Flooding problems along Altamont Creek and Arroyo Las Positas are caused by insufficient channel capacity in unimproved reaches, sediment accumulation within the channel, and increases in runoff from adjacent and upstream development. Through expanding urbanization, the resulting increase in stormwater runoff

has caused longer duration, high-velocity flows in the easily eroded natural stream channels. Upland erosion has increased sedimentation in Altamont Creek, slowly reducing its capacity to prevent downstream flooding in Arroyo Las Positas and Alameda Creek. Brushy Creek exhibits similar signs of erosion: upper portions of the creek are moderately to steeply incised, and adjacent livestock grazing has caused destabilization of stream banks at various locations. However, there are no reported flooding problems along Brushy Creek.[14]

Groundwater

The climate, topography, geology, and land use affect groundwater conditions at each of the proposed sites. The Natural Resource Conservation Service (NRCS) soil survey of Alameda County, published in 1966, indicates that surface soils of all four sites contain substantial amounts of clay with medium to low infiltration rates (0.05-0.2 inches per hour) and high shrink-swell potential. The NRCS survey and recent field visits verify that the sites also contain clay loam, loam, and other alluvial soils. The proposed sites contain the following soil types:[15]

- Dyer Road Site #1 - 15% Altamont clay
  85% Cotati fine sandy loam
- Dyer Road Site #5 - 10% Rock outcrop
  20% Cotati fine sandy loam
  35% Altamont clay
  35% Gaviota rocky sandy loam
- Laughlin Road Site #3 - 100% Altamont clay

The Livermore-Amador Valley groundwater basin is divided into sub-basins based largely on fault zones, which form local impediments to groundwater flow. The Valley has been divided into 14 sub-basins that have been grouped into two categories: the Main Basin and the Fringe Sub-Basins. The proposed project sites are located primarily on the Altamont Sub-Basin, which is a component of the larger Fringe Sub-Basins. The Fringe Sub-Basins are characterized by comparatively thin sand lenses that hold less water than the Main Basin, and by relatively limited groundwater storage, low well yield, and poorer water quality than the Main Basin.[16]

The Altamont Sub-Basin lies in the east and northeast of the Livermore Valley. Groundwater in this area is derived from Cretaceous and Miocene age marine sandstones and shales and

from water contained in the older Quaternary alluvial deposits. Salinity of the water is moderately high and boron content is high. Water within this basin discharges primarily into Altamont Creek and flows southward through the Springtown Alkali Sink into Alameda Creek.

The surface soil types indicate that groundwater flow in the unsaturated and saturated zones of the subsurface is relatively slow. Current groundwater conditions at the sites are consistent with similar Livermore Valley areas, such as the adjacent Vasco Sub-Basin. Generally, groundwater within these areas is of poor quality because of high sodium chloride, nitrate, boron and other salts content.

Site Characteristics

Laughlin Road Site #3

Laughlin Road Site #3 (see Figure 2-3, in Section 2, Project Description) is a vacant 50-acre parcel that occupies a promontory between 680 and 760 feet above sea level and is bisected by a shallow south-sloping declivity. The site is covered by annual grasses and contains no developed drainage-ways or hydrologic features that are discernible on the surface other than the slight swales that drain the site. This is an upland site, located on a ridgeline in the foothills above Vasco Road, adjacent to the City of Livermore.

Dyer Road Site #5

Dyer Road Site #5 is a vacant 50-acre parcel on the west side of Dyer Road about 1.8 miles north of the intersection of Dyer Road and Altamont Pass Road, directly northwest of Dyer Road Site #1 (see Figure 2-4, in Section 2, Project Description). This site lies on the lower flank of a gentle hillside sloping toward Dyer Road. The site has an elevation of about 800 to 860 feet above sea level and gently to the northeast. It contains two distinct drainage ways that flow toward Brushy Creek.

Dyer Road Site #1

Dyer Road Site #1 (see Figure 2-5, in Section 2, Project Description) is a vacant 25-acre parcel that occupies an alluvial terrace covered by annual grasses (pasture land). The site surface slopes gently to the southeast. Its elevation is between 780 and 820 feet above sea level. This site is on the valley floor, and the soils are a mixture of fine sandy loam and clay. The site contained several areas of ponded water that were observed during site visits in

March, April, May, and June 2000. These ponded areas are in shallow depressions, adjacent man-made berms, and in areas of low permeability.

Relevant Plans and Policies

Although Zone 7 is not under the jurisdiction of Alameda County or the City of Livermore, the Water Agency voluntarily follows their guidelines whenever feasible.

Livermore Community General Plan

The Livermore General Plan includes the following water resource management policies:[17]

- Groundwater withdrawal shall not exceed yields established by the State and the quality and quantity of groundwater shall be maintained or improved.
- The City shall preserve recharge areas or highly permeable soils. Developers shall be required to mitigate possible adverse impacts upon such areas and no development shall be permitted that would have a substantial adverse impact.
- The City shall use the arroyos, creeks, floodplains, Zone 7 rights-of-way and the South Bay Aqueduct wherever possible as components of the recreation trailways system, including development of pedestrian, bicycle and equestrian trails along their alignments.
- The City shall take all the necessary measures to regulate runoff from urban uses to protect the quality of surface and ground waters and other resources from detrimental conditions.
- Proposed public and private projects shall employ methods for management of vegetative cover, surface water runoff, groundwater recharge, erosion and sedimentation processes.
- To the greatest extent possible, arroyos and creeks shall be preserved in their natural state and flood plains shall be required and maintained as an alternate to reconstructing channels to accommodate flood flows.

East County Area Plan

The ECAP includes the following hydrologic guidelines and implementation policies:[18]

- implementation of the County's Urban Runoff Clean Water Program and Storm Water Management Plan;
- development of design criteria for the multi-use of on-site water control features required under the County's Storm Water Management Plan;
- protection of the groundwater basin by controlling potentially polluting land uses in areas over a significant groundwater basin;
- control of erosion and sedimentation of watercourses caused during and after construction and by other land-disturbing activities;
- use of recycled water, treated by the reverse osmosis or other demineralization process, for agricultural irrigation; and
- reduction in use of herbicides by public agencies.

Alameda County Urban Runoff Clean Water Program

The Alameda County Urban Runoff Clean Water Program has been established to comply with the Regional Board's Basin Plan Revisions, adopted in 1986, and with requirements of the Clean Water Act and other federal regulatory programs.[19] There are seventeen agencies in Alameda County participating in the implementation of the program including Zone 7 of the Alameda County Flood Control and Water Conservation District.

The program has prepared a Storm Water Management Plan for Alameda County, which is an integral and enforceable part of the Program's NPDES permit.[20] The Alameda County Flood Control and Water Conservation District, Zone 7, is authorized to provide flood protection throughout its service area, including the City of Livermore and unincorporated North Livermore valley. Currently, Zone 7 is in the process of updating its analysis of valley-wide flood flows to refine its *Master Storm Drainage Plan*, and to implement a financing mechanism to support its plan. The Storm Water Management Plan contains strategies for controlling pollutant discharges from runoff that flows into municipal storm drain systems.

Runoff originating from the proposed project site locations flows primarily through roadside ditches and natural earthen channels before entering the municipal storm drain system in the City of Livermore. The Plan proposes a number of management practices and control techniques to be implemented under the following seven program components:

- Public Information and Participation
- Municipal Government Activities
- New Development and Construction Site Controls
- Illicit Discharges Identification and Elimination
- Industrial Dischargers Identification and Runoff Control
- Monitoring
- Storm Water Treatment

The "New Development and Construction Site Control" component identifies non-point source pollution control measures that are required as a condition of approval for development projects. The measures cover pre-construction, construction, and post-construction activities that are designed to reduce the amounts of pollutants and sediments discharged into the storm drainage system. Best Management Practices for New Development and Construction Site Controls identified in the Alameda County Stormwater Management Plan have been incorporated into the mitigation measures presented later in this section.

Activities conducted under the other program components include developing guidelines for planning and inspection, educating planning and public works staff to improve plan checking and permit review processes, increasing the number of inspections conducted during and after construction, and educating and providing guidance to developers, contractors, engineers and architects.

The non-point source pollution control measures required as a condition of development approval include the use of best management practices during construction (i.e., proper material and equipment storage and handling, and temporary erosion controls) and installation of permanent controls (i.e., use of detention/retention basins, infiltration trenches, and permanent erosion controls) that will be maintained over the life of the project.

San Francisco Regional Water Quality Control Board (RWQCB)

The Regional Water Quality Control Board recommends the following hydrologic policies for proposed new developments:[21]

- Avoid conversion of areas particularly susceptible to erosion and sediment loss (i.e., steep slopes) and/or establish development guidance that identifies these areas and protects them from erosion and sediment loss.
- Preserve areas that provide water quality benefits and/or are necessary to maintain riparian and aquatic biota.
- Promote site development that protects the natural integrity of topography, drainage systems and water bodies.
- Promote integration of storm water quality protection into construction and post-construction activities at all development sites.

The Regional Board is under the direction of the State Water Resources Control Board and maintains jurisdiction over Alameda Creek and its tributaries, as well as Brushy Creek and its tributaries. The Regional Board is required by law to develop, adopt and implement a Water Quality Control Plan for the entire region.[22] The principal elements of this plan are:

a statement of beneficial water uses that the Board will protect;

water quality objectives needed to protect the designated beneficial water uses; and

strategies and time schedules for achieving the water quality objectives.

These water quality objectives are to be achieved primarily through the establishment and enforcement of waste discharge requirements.

The State Water Resources Control Board has developed water quality objectives for priority pollutants. The objectives are contained in a "Development of Water Quality Control Plans for: Inland Surface Waters of California and Enclosed Bays and Estuaries of California."[23] Alternatives for developing statewide water quality objectives address three major areas of protection: (1) aquatic life; (2) human health; and (3) exposure to chlorinated dibenzodioxins

and dibenzofurans. The other provisions pertaining to the above-stated objectives include requiring all point and non-point discharges (including urban runoff) to comply with the identified water quality objectives; and imposing effluent limits through NPDES permits or waste discharge requirements, such that the water quality objectives are not exceeded in the receiving water outside a designated mixing zone.

Flood Control and Storm Drainage Jurisdictional Considerations

Within the Livermore area, storm drainage facilities are maintained as follows:

- Zone 7 of the Alameda County Flood Control and Water Conservation District accepts and maintains channels authorized in its Drainage Improvement Plan and that have been improved to Zone 7 standards;
- The City of Livermore Public Services Department is responsible for maintenance of unimproved channels within the City of Livermore property;
- The City of Livermore Public Services Department maintains the system of pipes and channels that have been accepted by the City for maintenance; and
- Individual property owners are responsible for drainage on private property per the Alameda County Water Course Ordinance in unincorporated areas.

IMPACTS AND MITIGATION MEASURES

The construction of conveyance pipelines to and from the water treatment plant has the potential to affect areas along the rights-of-way of existing roadways. Because these pipelines would be placed beneath existing roadways, their primary impacts would be construction-related rather than operational. The transmission pipelines to be constructed for the treatment plant will be examined in a separate, project-level EIR by Zone 7. Raw water conveyance from Bethany Reservoir to the Dyer Canal Backsurge Pool currently is being assessed in the Line B4-A Alternatives Analysis, and will be the subject of a separate EIR by Zone 7. These pipelines are considered at a programmatic level in this EIR. The raw water conveyance pipeline between the Dyer Canal Backsurge Pool and each of the possible water treatment plant sites is considered part of the Altamont WTP project for the purposes of this EIR.

Standards of Significance

The CEQA Guidelines (Section 15065) and the associated environmental check list indicate that hydrology and water quality impacts are considered significant if one or more of the following conditions would result from project construction:

- a substantial change in rate and amount of surface runoff or change in amount of water in any water body;
- a substantial degradation of water quality;
- the contamination or substantial reduction of a public water supply;
- a substantial degradation or depletion of groundwater resources;
- a substantial interference with groundwater recharge or direction and rate of groundwater flow;
- the location of facilities within a flood-prone area or alterations to the course or flow of floodwater;
- substantial flooding, erosion or siltation;
- the alteration of stream flow characteristics that result in erosion, sedimentation or flooding downstream.

Unless otherwise noted, all identified impacts are considered to be significant adverse impacts. Corresponding mitigation measures, unless otherwise noted, would be sufficient to reduce impacts to an insignificant level.

Although not required by CEQA, some less than significant impacts have been discussed because they are issues of local concern. Although no mitigation measures are required by CEQA, in some cases mitigation measures are proposed that would further reduce the level of impact.

For the purpose of this Draft EIR, the potential hydrologic effects of the proposed Altamont WTP development are considered from two points of view: the short-term and long-term effects of the project on the environment. In the first category, the impacts of construction are considered. The short-term effects of construction are potential water quality degradation resulting from on-site excavation, erosion and subsequent sedimentation, as well as from

improper disposal of materials/chemicals, equipment washdowns, etc., rather than effects stemming from hydrologic alteration. Based on these criteria, the development of the Altamont WTP may have significant impacts on hydrology and water quality, if mitigation measures are not implemented.

In the second category, the hydrologic changes that could alter the water quality and flooding potential within the project area and in areas further downstream are considered. A basic criterion applied to the analysis of impacts is whether or not implementation of the Altamont WTP project would create a fundamental change in the local hydrologic regime. Other criteria applied to the analysis of impacts relate to deterioration of the quality of surface waters as defined by RWQCB objectives, or an increase in flooding hazards on the project area or in downstream locations. Based on these criteria, the development of the Altamont WTP project is not expected to have a direct significant impact on hydrology and water quality; although, when considered cumulatively, the water treatment plant may have adverse impacts on hydrology and water quality, if mitigation measures are not implemented.

Impact 3.2.3-1

Construction activities for proposed facilities and associated infrastructure could result in short- or long-term increases in erosion. (PS)

Alameda Creek and its associated tributaries have been identified as impaired water bodies by the U.S. Environmental Protection Agency.[24] The designation and inclusion within the 1998 California 303(d) list of impaired water bodies indicates that the primary pollutant/stressor of concern is sedimentation/siltation. The following sources of sediment were identified as potential contributors within the Alameda County Stormwater Management Plan: construction/ land development, highway/road/bridge construction, urban runoff, channelization, removal of riparian vegetation, and streambank destabilization.

During the construction period, soils at each construction site would be exposed to the erosive forces of wind and storm runoff to a potentially significant degree. When de-vegetated and excavated, they would be subject to gullying under the influence of moderate to heavy rains if preventive action were not taken. Grading activities during facility and conduit construction could adversely affect downstream water quality through erosion, the transport of sediments and dissolved constituents entering the natural receiving waters, and increased turbidity and contaminant load.

Accelerating the deposition of eroded soil in Altamont Creek or other tributary streams would continue to decrease their capacity as drainage facilities, as discussed previously. Given the very low slopes in the areas where grading would occur, it would be possible to control erosion and sedimentation impacts on the project site and prevent downstream damage.

Runoff discharges from construction activities in areas greater than 5 acres in size, such as the proposed water treatment plant sites, require a stormwater permit from the Regional Water Quality Control Board (see Section 3.2.4, Water Quality). Stormwater permits for construction activities require the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes site controls for construction sites that prevent pollutants, including eroded soil and fill particles, from entering stormwater and leaving the construction site.

The single most effective method to counteract the potential for water erosion is to complete as much of the grading and construction as possible during the dry season. However, if a portion of the grading or construction phase extends into the wet season, sediment can be prevented from leaving the site through the use of silt fences, straw bales, perimeter ditches, water bars, temporary culverts and swales, sediment traps, minimal grading concepts, or similar techniques appropriate for the site. These erosion and sediment transport control structures need to be in place prior to the onset of seasonal rains.

The potential water treatment plant sites would need different amounts of grading and fill to construct the treatment facilities. Dyer Road Site #1 has the additional concern of vernal ponds near the perimeter of the parcel (see Figure 2-5 in Section 2, Project Description). Dyer Road Site #1 would need the least grading and fill, because the site is fairly level, but has the additional concern of wetlands protection. Dyer Road Site #5 would need the next largest amount of grading and fill; and Laughlin Road Site #3, the most. The specific design of the erosion and sediment transport control plan would be based on the actual conditions at the selected site at the time of grading. The concepts to be incorporated in the plan (as appropriate for the selected site) have been published by the Association of Bay Area Governments.[25] The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.3-1

- Because it is not feasible to limit the project construction schedule to the dry season (April through September), Zone 7 will prepare a Storm Water Pollution

Prevention Plan (SWPPP) that utilizes on-site measures to reduce erosion during the construction period. The SWPPP is a document consisting of a narrative and a separate sheet within the construction document set, usually in the Civil Engineering or Landscape series, that outlines both a plan to control stormwater pollution during construction (temporary controls) and after construction is completed (permanent elements). For example, detention or retention basins can be designed to function as sediment traps/basins during the construction phase. Following completion, sediment is removed and the outlet structures are modified to function as stormwater detention/retention basins.

- Submit the SWPPP's soil erosion and sedimentation control plan to the County prior to grading. The erosion and sedimentation control plan should be designed by an erosion control professional, or landscape architect or civil engineer specializing in erosion control.

  This plan would include, but is not limited to, the following erosion control methods:

  - The erosion and sedimentation control plan would be reviewed, implemented and inspected as part of the approval process for the final grading plans for the project.

  - Concepts similar to those formulated by the Alameda Countywide Clean Water Program and the Association of Bay Area Governments would be used, based on the specific erosion and sediment transport control needs of each area in which grading, excavation, and construction is to occur. These concepts include applications that could be implemented on all sites, and some that would be appropriate only for specific sites. The possible methods are not necessarily limited to the following items:

    Confine grading and activities related to grading (demolition, excavation, construction, preparation and use of equipment and material storage areas [staging areas], preparation of access roads) to the dry season, whenever possible.

    Locate staging areas outside major streams and drainage ways.

    Keep the lengths and gradients of constructed slopes (cut or fill) as low as possible.

    Discharge grading and construction runoff into small drainages at frequent intervals to avoid build-up of large, potentially erosive flows.

Prevent runoff from flowing over unprotected slopes.

Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction of the project.

Keep runoff away from disturbed areas during grading and related activities.

Stabilize disturbed areas as quickly as possible, either by vegetative or mechanical methods.

Direct runoff over vegetated areas before discharge into public storm drainage systems, whenever possible.

Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or siltation fences.

Use interceptor ditches, drainage swales, or temporary detention basins to prevent storm runoff from transporting sediment into drainage ways and to prevent sediment-laden runoff from leaving the disturbed area.

Install silt fences to prevent sedimentation in adjacent areas and down gradients into drainages.

Require the contractor to remove and dispose of all project-related sedimentation in off-site retention ponds.

Use landscaping and grading methods that lower the potential for down-stream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower storm-water conveyance velocities are examples of effective methods.
Control landscaping activities carefully with regard to the application of fertilizers, herbicides, pesticides or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team.

- The erosion control professional would be on the site during the installation of the erosion and sediment transport control facilities, to supervise the implementation of the designs. The maintenance of the facilities during the grading and construction period also would be monitored by the erosion control professional. The erosion control professional should prepare an "as-built" erosion and sediment control facility map, to be filed with Zone 7, showing details of the permanent elements of the plan and providing an operating and maintenance schedule throughout the operational period of the project.

- The proposed water supply and transmission pipeline corridor to be constructed in conjunction with the plant facilities would be placed under existing roadways wherever possible. During construction of the pipeline, temporary erosion control measures would be installed to alleviate potential construction-related impacts. During construction, all major wetland and riparian habitats adjacent to the pipeline alignment should be protected and avoided.

Mitigates:	Impact 3.2.3-1 (I)
Implementation:	Include in project design, and make part of the grading and construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.3-2

Construction of water treatment plant facilities and paved access roads and parking areas would result in an increase in impervious areas and higher levels of surface runoff, potentially increasing erosion and flooding in downstream drainage ways. (PS)

Only small portions of the project vicinity are developed and covered by impervious area; that is, roadway, driveways, and building footprints. Build-out of the Altamont WTP facilities would replace part of an existing undeveloped site with built area. Approximately 7 acres of impervious surface would be created at the chosen site.[26] The entire 7 acres would not be paved, and the basins and lagoons included in the design would not contribute runoff. The 7-acre area does not include the effect of additional roadways that would be constructed to provide access to the chosen site. The projected increase in impervious area would result in an increase in stormwater runoff that could potentially impact downstream areas. The rational method was used to estimate potential runoff from the sites after full development on a 7-acre portion of each of the respective sites. Comparing existing conditions (5.9 cfs) to developed

conditions (9.4 cfs) shows an increase of approximately 40 percent (3.5 cfs) in surface runoff associated with the 100-year storm event.[27]

Under current conditions this increase in runoff would contribute incrementally to the existing flooding problems along selected portions of Altamont Creek and Arroyo Las Positas. However, because the increase in runoff would be a minor component (<0.5%) of the overall peak flow rate, and the resulting area of additional flood inundation would be negligible, the direct impact of the projected increase would be insignificant. Additionally, the Zone 7 sediment removal project and recommended drainage improvements proposed as part of the North Livermore Specific Plan would reduce the current flood hazard substantially. Following the completion of these projects, the potential increase in runoff from the proposed Altamont WTP would be of relatively minor importance. Given that the effects caused by the development of any individual site would be relatively minor, it is advantageous to eliminate or reduce them on-site, rather than attempting to correct them downstream. The following mitigation measure, recommended by the EIR consultant, addresses the cumulative impacts of increased runoff, and reduces them to an insignificant level for the Altamont WTP project.

Mitigation Measure 3.2.3-2

- Design a stormwater management system to offset the effects of impervious surfaces at the project site. Post-construction runoff leaving the site should not exceed existing (pre-construction) peak flows for the 100-year storm. The design should be reviewed by the Zone 7 Flood Control Engineering Section to ensure appropriate management of stormwater flows in the surrounding vicinity.

- Storm drainage systems designed to control site runoff to levels equal to or less than existing conditions are recommended by the Alameda Public Works Agency to reduce the potential for cumulative impacts.[28] Because the anticipated drainage improvements have not yet been built, it is recommended that the overall project design respond to the existing flooding problems and mitigate for the minor increase in runoff that has been projected.

- Ideally, the overall mitigation strategy should include a site-specific design focused on the development and inclusion of explicit elements to reduce the amount of impervious surfaces on a project site, and to allow improved management of stormwater flows within the surrounding vicinity so that runoff leaving the site would not exceed existing levels.

- Traditional designs for managing runoff emphasize maintaining the efficiency of conduits (i.e., pipes and channels) that transport stormwater to downstream locations where the water is released and/or stored. On-site strategies such as

permeable surfaces, infiltration trenches or detention basins that reduce runoff at the project site are important components of an overall stormwater management system. Small collection and infiltration strategies, located at the point where runoff initially meets the ground, repeated consistently over a project area, will yield the greatest runoff control for the least cost. The procedures and practices listed below have been adopted by the Alameda Countywide Stormwater Management Plan.[29]

- Incorporate measures into overall drainage design that maximize infiltration/permeability and trap sediment and pollutants in stormwater runoff.

  To the extent possible, locate impervious surfaces to avoid identified natural recharge areas.

  Wherever feasible, use the Bay Area Stormwater Management Agencies Design Guidance Manual to modify roadway, landscaping and channel improvement projects to incorporate recommended design elements such as: easily cleanable sediment catch-basins, debris screens, gravel strips and/or trenches, concave planting areas, permeable substrate, and infiltration basins at the end of downspouts.

The construction of near-source detention facilities (as described in the Alameda County Stormwater Management Plan) is recommended by the EIR consultant as an effective flood control strategy. Proper implementation would necessitate construction on or near the project site to ensure that peak runoff from the site under developed conditions would not exceed that of runoff under pre-development (existing) conditions. If adequate detention facilities were provided for collection and detention of increased runoff, and such runoff were detained for a sufficient period of time to enable the peak flood flow wave in Arroyo Las Positas to pass before such runoff was allowed to enter into the Arroyo, downstream peak flood flows would not increase. Stormwater infiltration trenches or basins could be included in the project design as an integrated measure to reduce flooding impacts and to improve downstream water quality. The locations of improvements could coincide with the drainage conduits and flow paths identified on the selected site or at other locations deemed suitable by Zone 7.

Mitigates:	Impact 3.2.3-2 (I)
Implementation:	Include in project plans and specifications, and make part of the construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

NOTES - Hydrology

1. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

2. Environmental Science Associates, *Zone 7 Water Agency Water Supply Planning Program EIR,* January 1999.

3. Alameda County Public Works Agency, *Hydrology and Hydraulics Criteria Summary for Western Alameda County,* revised August 7, 1989.

4. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

5. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

6. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

7. Contra Costa County Flood Control District, Flood Control Counter Duty Reference, July 19, 2000.

8. Contra Costa County Flood Control District, Flood Control Counter Duty Reference, July 19, 2000.

9. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

10. Federal Emergency Management Agency, National Flood Insurance Program, *Flood Insurance Rate Map, Alameda County, California*, 1990, Community-Panel Number 060311 022 C.

11. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

12. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR—Part 1, Volumes I and III,* and *Resource Conservation Program Management Practices Handbook,* April 2000.

13. Alameda County Planning Department, *East County Area Plan*, adopted May 5, 1994.

14. Contra Costa County Flood Control District, Flood Control Counter Duty Reference, July 19, 2000.

15. Natural Resource Conservation Service, *Soil Survey, Alameda Area, California,* Series 1961, No. 41, March 1966.

16. Environmental Science Associates, *Zone 7 Water Agency Water Supply Planning Program EIR,* January 1999.

17. City of Livermore, *Community General Plan, 1976-2000,* adopted March 8, 1976, reprinted 12/94, updated 8/98.

18. Alameda County Planning Department, *East County Area Plan*, adopted May 5, 1994.

19. Alameda County Public Works Agency, *Storm Water Management Plan, July 1996 - June 2001, Alameda Countywide Clean Water Program*, February 1997.

20. Alameda County Public Works Agency, *Storm Water Management Plan, July 1996 - June 2001, Alameda Countywide Clean Water Program*, February 1997.

21. San Francisco Bay Regional Water Quality Control Board, *Region 2 Water Quality Control Plan,* revised 21 June 1995

22. Alameda County Public Works Agency, *Storm Water Management Plan, July 1996 - June 2001, Alameda Countywide Clean Water Program*, February 1997.

23. California State Water Resources Control Board, *Development of Water Quality Control Plans for: Inland Surface Waters of California and Enclosed Bays and Estuaries of California*, April 1991.

24. U.S. Environmental Protection Agency, Office of Water, *Total Maximum Daily Load (TMDL) Program*, *California List of Impaired Waters for 1998.*

25. Association of Bay Area Governments, *Manual of Standards for Erosion and Sediment Control Measures,* revised, June 1995.

26. Montgomery Watson, Karen Johnson, personal communication, July 2000.

27. EXISTING CONDITIONS:
The Rational Formula, $Q_{pk}=CIA$
where: C=0.35, coefficient associated with open pasture, clay-loam soils
I = 0.84 inches per hour for a 100-year storm of 1 hour duration
A = 20 acres
estimated Q_{pk}= 5.9 cfs

DEVELOPED CONDITIONS:
The Rational Formula, $Q_{pk}=CIA$
where: C=0.95, coefficient associated with, increased impervious area
I = 0.84 inches per hour for a 100-year storm of 1 hour duration
A = 7 acres of impervious surfaces (C=0.95), plus 13 acres of permeable surfaces (C=0.35)
estimated Q_{pk}= 9.4 cfs

Difference caused by Project: 3.5 cfs

28. Alameda County Public Works Agency, *Storm Water Management Plan, July 1996-June 2001, Attachment B - Best Management Practices for New Development and Construction Site Controls Guidance and List, Alameda Countywide Clean Water Program*, February 1997.

29. Alameda County Public Works Agency, *Storm Water Management Plan, July 1996-June 2001, Attachment B - Best Management Practices for New Development and Construction Site Controls Guidance and List, Alameda Countywide Clean Water Program*, February 1997.

3.2.4 WATER QUALITY

Introduction

Water quality issues associated with the proposed Altamont Water Treatment Plant (WTP) project have local and regional components. The potential effects of water treatment plant operations on local watercourses is addressed in this section of the EIR and include potential releases of water pollutants to streams and groundwater as a result of Altamont WTP operations. Treated potable water would be provided by the proposed Altamont WTP to residents and businesses in the Zone 7 Water Agency service area.

Regional issues such as the ability of the regional wastewater treatment facilities to manage the supplied water after its use (if the water is not used outdoors); and the effects that the water transfer, use, and disposal have on the quality of water in San Francisco Bay and the Sacramento/San Joaquin River Delta, are more broad in scope and are addressed in Appendix F, Water Transfers, Delta Water Quality, and the Calfed Program. As discussed there, the resolution to many of the issues is outside Zone 7's jurisdiction.

Sources of Information

Major sources of information for this section of the EIR include the Stormwater Management Plan and 1999 Annual Reports prepared by the Alameda Countywide Clean Water Program; the San Francisco Bay Basin Plan, the National Pollutant Discharge Elimination System (NPDES) permit for the Alameda Countywide Clean Water Program, and other surface water quality information from the San Francisco Bay Regional Water Quality Control Board (RWQCB); drinking water quality reports from Zone 7 and drinking water regulatory information from the California Department of Health Services and the federal Environmental Protection Agency (U.S. EPA); wastewater discharge information obtained from wastewater agencies serving the Zone 7 service area; the *Zone 7 Water Supply Planning Program EIR*, and reports and plans prepared by and for Zone 7.

SETTING

Water Supply/Drinking Water Quality

Drinking Water Regulations

The 1974 Safe Drinking Water Act is intended to ensure that drinking water is of high quality everywhere in the U.S. In response to new information about water pollution, the law has been amended several times, most recently in 1996. The Safe Drinking Water Act establishes federal standards for drinking water quality and regulates public water systems. Large systems, like Zone 7, are the most closely regulated.

Under the Safe Drinking Water Act, the U.S. EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. In California, the State Department of Health Services (DHS) implements the Act in conjunction with the similar California Safe Drinking Water Act. State drinking water standards are at least as stringent—and, in some cases, more stringent—than corresponding federal standards.

There are two basic types of drinking water standards:

- Primary standards, or Maximum Contaminant Levels (MCLs), are enforceable standards. These are designed to protect human health, but the standard-setting process accounts for the economic and technological feasibility of achieving each standard. The U.S. EPA and California DHS attempt to set Maximum contaminants levels for every contaminant that can affect public health adversely and is known or anticipated to occur in public water systems.

- Secondary standards are non-enforceable guidelines. Typically, U.S. EPA and DHS set secondary standards for constituents that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) when they are at elevated levels in drinking water.

Currently, the U.S. EPA and California DHS are in the process of developing several new primary standards to enhance consumer protection from hazards associated with radioactivity, disinfectants and disinfection by-products, pathogens (such as cryptosporidium and giardia) sulfate, and arsenic in drinking water.

The Act requires large water suppliers like Zone 7 to conduct regular monitoring of their water supplies and to report the results to consumers in annual water quality reports. If a water system violates a drinking water regulation, it must notify consumers about the violation, what it means, and how consumers should respond.

Zone 7 Water Supplies and Water Quality

Currently, the primary source of Zone 7's water supply is the State Water Project. Each spring, water that runs off from the Sierra Nevada mountains is captured behind State-owned dams like Oroville Dam. As demand for water supply from the State Water Project occurs, water is released from Oroville Dam to the Feather River, which eventually flows into the Sacramento/San Joaquin River Delta. In the delta, large pumps concurrently collect water and transfer it to Bethany Reservoir. The South Bay Aqueduct Pumping Plant takes water from Bethany Reservoir and releases it into the South Bay Aqueduct (SBA). The SBA carries water to Zone 7, as well as to the Alameda County Water District (serving Fremont, Newark, and Union City), and the Santa Clara Valley Water District (serving most of Santa Clara County). Zone 7 treats South Bay Aqueduct water at Patterson Pass WTP and Del Valle WTP.

Other water sources for Zone 7 are surface water runoff that flows into Lake Del Valle, supplemental surface water purchases (also transferred to Zone 7 through the South Bay Aqueduct), and groundwater, which is pumped from wells in the Livermore-Amador Valley area. The groundwater, comprising 15 to 20 percent of Zone 7's water supply, generally is considered to be of different quality than surface water supplies. The most noticeable differences between groundwater and surface water available to Zone 7 are the elevated total dissolved solids and hardness levels. These affect taste, may create spots and scale on dishes, faucets and shower heads, and reduces soap lather.

Zone 7 treats its water supplies to meet all adopted State and federal drinking water quality standards. Table 3.2.4-1 summarizes water quality for typical Zone 7 waters. Occasionally, groundwater supplies may exceed recommended secondary (aesthetic) standards for total dissolved solids and corrosivity. Groundwater also has exceeded a proposed standard for Radon. This standard, which is still under review, provides both a treatment-based compliance approach and an alternative compliance method involving implementation of a comprehensive mitigation program that should be feasible for Zone 7.

TABLE 3.2.4-1
WATER QUALITY SUMMARY FOR TYPICAL ZONE 7 WATERS, SELECTED PARAMETERS
(Data in Milligrams per Liter Unless Otherwise Noted)

		Water Supply Source Average Value[a]	
Parameter	**Drinking Water Standard**	**Del Valle Water Treatment Plant (Surface Water from South Bay Aqueduct and Local Runoff)**	**Mocho Well Field (Groundwater)**
Copper	1.3[b]	< 0.005	< 0.005
Mercury	0.002	< 0.0002	< 0.0002
Nickel	0.1	< 0.005	< 0.005
Selenium	0.005	< 0.002	< 0.002
Turbidity (NTU)[c]	–[d]	0.06	0.10
Total Dissolved Solids	500[e]	262	482
Chloride	250[e]	70	72
Conductivity (mhos/cm)	900[e]	478	870
Corrosivity[f]	> 12	12.5	12.3
Hardness (as $CaCO_3$)	none	96	358

Notes:

a. Annual Average Value, 1999.
b. Action Level, above which additional corrosion control must be implemented.
c. Cloudiness, in nephelometric turbidity units.
d. Standard based on treatment technique, rather than measured value.
e. Secondary (recommended) standard based on aesthetics.
f. Aggressiveness Index, a unitless measure of how quickly corrosion will take place.

Source: Zone 7, 1999 Water Quality Data.

Surface Water Quality Protection

Surface Water Quality Regulation

The 1972 Clean Water Act's objective is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Enacted in response to some extreme examples of water pollution, the Act has created significant improvement in the water quality of U.S. rivers, streams, lakes, and estuaries. The goals of the Act include eliminating the discharge of pollutants into surface waters and achieving a level of water quality that provides for the protection of beneficial uses like fishing and swimming. The Act requires issuance of permits (National Pollutant Discharge Elimination System or NPDES permits) to entities like government agencies and industries that discharge pollutants into surface waters.

California's Porter-Cologne Water Quality Control Act of 1970 is the primary State statute governing water quality protection. Like the Federal Clean Water Act, the Porter-Cologne Act includes requirements for discharge permits (called Waste Discharge Requirements) and monitoring. It also includes requirements for spill reporting and cleanup of polluted surface and groundwater.

The State Water Resources Control Board and nine Regional Water Quality Control Boards (RWQCB) implement both the Federal Clean Water Act and the Porter-Cologne Act in California. In the San Francisco Bay Area, the San Francisco Bay RWQCB provides water quality protection through activities such as issuing discharge permits, inspecting sites, cleaning up contaminated sites, and developing and implementing water quality plans and policies. The *San Francisco Bay Regional Water Quality Control Plan* (Basin Plan) guides regional water quality protection activities. The Basin Plan identifies beneficial uses of regional surface waters and groundwater, establishes water quality objectives (which include numeric pollutant levels and other criteria established to protect beneficial uses or to prevent nuisances), and details an implementation program to achieve and maintain water quality.

In the next several years, the U.S. EPA and both the State and Regional Water Quality Control Boards anticipate adopting new regulations and planning documents that will alter the current surface water quality regulatory framework in the San Francisco Bay Area. Planned changes include the following:

- California Toxics Rule - In May 2000, the U.S. EPA issued standards for toxic pollutant levels in California surface waters. These standards generally are more stringent than water quality standards currently in the San Francisco RWQCB Basin

Plan. By the end of 2000, these standards will start to be incorporated in new and reissued permits.

- Enclosed Bays and Estuaries Plan - The State Water Resources Control Board intends to issue a revised version of the document that sets water quality standards for bays and estuaries and details policies for implementing those standards.

- Basin Plan Amendments - The San Francisco Bay RWQCB plans several amendments to its Basin Plan to implement new programs designed to solve identified water quality problems. The first such amendments are planned to address mercury and exotic species.

San Francisco Bay Area and Sacramento/San Joaquin River Delta Water Quality

Under Section 303 (d) of the Clean Water Act, each state must work with U.S. EPA to create lists of impaired water bodies and designate the reasons for their impairment. In May 1999, the agencies finalized the most recent list, which includes the following impairments:

- San Francisco Bay (South) - copper, mercury, nickel, selenium, diazinon, PCBs, dioxins and furans, and exotic species.

- Sacramento/San Joaquin River Delta - diazinon, chlorpyrifos, DDT, "Group A" pesticides (aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane [including lindane], endosulfan, and toxaphene), mercury, and unknown toxicity.[1]

- San Francisco Bay Area Urban Streams - diazinon.

Federal law requires each state to develop solutions to these impairment problems before 2012. Although other approaches are possible, generally this means that a "Total Maximum Daily Load" (TMDL) must be calculated for each pollutant, and then an implementation plan must be developed to reduce discharges of the pollutant in accordance with the TMDL. Developing and implementing TMDLs is a major focus of activity for water quality agencies. Future requirements regarding discharges of the listed pollutants are uncertain, but likely to be significantly more stringent than current requirements.

Stormwater Runoff From Zone 7 Facilities

When it rains, the water that falls on paved and covered surfaces runs off, because it cannot soak into the ground. In urban areas, municipalities have constructed storm drain systems to prevent flooding and to direct stormwater runoff into local streams. Urban stormwater runoff collects pollutants like metals, pesticides, oil and grease, sediments, and trash from the surfaces it crosses before entering storm drains. These pollutants can impair the creeks, into which runoff flows, and San Francisco Bay, into which the creeks flow. In general, urban stormwater runoff is significantly more polluted than the discharge from wastewater treatment plants in the San Francisco Bay Area.[2] Improving regional water quality necessitates actions to reduce pollutant levels in urban runoff.

Major contributors of contaminants to stormwater runoff in the Altamont WTP Project area are the roads, drainage ditches and impervious areas adjacent to the drainage ways. Between rainstorms materials accumulate on these surfaces in a variety of ways: for example, debris dropped or scattered by individuals; agricultural and livestock wastes; debris and other particulate matter washed into streets from yards and other unpaved areas; wastes and dirt from construction, renovation, and demolition; facility-generated wastes and hazardous materials; dirt, oil, tire, exhaust and brake lining residue contributed by automobiles; and fallout of air-borne particles. Non-point source pollutants (such as fertilizers, sediment, pesticides, oil, heavy metals, etc.) in stormwater collected in storm drains and conveyed long distances before treatment become more concentrated and are kept in suspension. These pollutants have the potential to affect receiving water bodies (such as creeks or the Bay). During rainfall, water may take several paths when it reaches the ground surface. As water fills surface depressions, it seeps into the ground where the ground is permeable, a process known as infiltration. As the rate of rain reaching the ground exceeds the rate of infiltration, water builds up on the ground surface. Once water is of sufficient depth, the water begins to flow down slope. This initial discharge of a storm is referred to as the "initial flow." The initial flow of each storm often contains the highest concentration of pollutants. However, this is not always the case because the phenomenon is dependent on the duration of the preceding dry weather period, rainfall patterns, rainfall intensity, the chemistry of individual pollutants, and site-specific conditions.[3]

The Clean Water Act requires that permits be issued for stormwater runoff from large and mid-sized urban areas. Together with other Alameda County municipal agencies, since 1991 Zone 7 operations have been covered by an NPDES permit regulating discharges to storm drains. That permit covers stormwater runoff from Zone 7's facilities as well as discharges from its activities (like pipeline construction and line flushing). Runoff from Zone 7 facilities

and the Zone 7 service area flows through local streams to Alameda Creek and, eventually, to South San Francisco Bay.

Like all such permits, the Alameda countywide permit requires Zone 7 to control pollutants to the maximum extent practicable, and to "effectively prohibit" non-stormwater discharges into storm drains. In accordance with U.S. EPA guidelines for municipalities, the permit requires Zone 7 and its partners in the Alameda Countywide Clean Water program to:

- conduct public education and outreach on stormwater impacts;
- promote public involvement and participation in water quality protection;
- detect and prevent illicit discharges, provide special controls for construction sites;
- implement pollution prevention and good housekeeping for municipal operations; and
- incorporate stormwater quality protection measures in new development and redevelopment.

Alameda County agencies have developed performance standards for each of the above activities.

The *Alameda Countywide Clean Water Program Stormwater Management Plan* (February 1997) details regional activities to be conducted through 2001. These activities generally are tasks intended to support each agency's own efforts to comply with the performance standards. Additional countywide activities include monitoring and special studies conducted to enhance the program's effectiveness in protecting water quality.

Zone 7 focuses its energies on preventing releases from its water treatment plants, new construction, and water supply system maintenance activities, and on identifying and preventing discharges to the storm drains, streams, and channels managed for flood control purposes. Together with other members of the countywide program, Zone 7 annually reports its progress to the San Francisco RWQCB. Zone 7's portion of the most recent annual report indicates that Zone 7 is fully or partially implementing all applicable performance standards, is regularly inspecting its facilities, and is participating in countywide program activities.

Wastewater Discharge from Zone 7 Service Area

The primary use for water treated by Zone 7 is for domestic, commercial and industrial uses in Zone 7's service area. Some of that water is used outdoors, primarily for landscaping. The remainder is used indoors and then discharged to the sewer system following use. Two wastewater (sewage) treatment plants serve the Zone 7 service area: one is operated by the City of Livermore and the other is operated by Dublin San Ramon Services District. Water supplied by sources other than Zone 7 also is discharged to these wastewater treatment plants. Both plants are nearing their treatment capacities.

Once the wastewater is treated, the plants have three options to recycle or dispose of the wastewater (not all options are available at both plants):

- wastewater is recycled as irrigation water (primarily for landscaping, primarily during the summer);
- wastewater is further purified and then infiltrated or may be injected into the local groundwater basin, where it replenishes the local aquifer; or
- wastewater is discharged through the Livermore-Amador Valley Water Management Agency (LAVWMA) pipeline to the East Bay Dischargers Authority outfall, and then into South San Francisco Bay.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Impacts are considered significant adverse changes in the physical environment if the proposed project would:

- violate any water quality standards or waste discharge requirement or otherwise cause a substantial degradation of water quality;
- require construction of new wastewater treatment facilities or expansion of existing facilities;
- provide a substantial additional source of polluted runoff; or
- contaminate or substantially reduce a public water supply, or substantially degrade or deplete groundwater resources.

Impacts in any of these categories would be considered unavoidable significant effects of the proposed project, if they could not be (a) eliminated, (b) avoided, or (c) reduced to an

acceptable level of risk by using existing techniques, generally recognized by water quality professionals in California to be applicable and feasible.

Methodology

The analysis of project-specific water quality impacts is based on examination of information from the Alameda Countywide Clean Water Program, the San Francisco Bay RWQCB, the U.S. EPA, CALFED Bay-Delta Program, and reports and plans prepared by and for Zone 7.

Impact 3.2.4-1

Increased stormwater runoff from additional impervious surfaces at the proposed Altamont WTP, and releases to storm drains from spills or other accidents, could lower the quality of runoff and increase pollutant levels in local streams. (PS)

Like all other Zone 7 operations, the proposed Altamont WTP would be included in the existing NPDES Permit that covers Zone 7 and other members of the Alameda Countywide Clean Water Program. Under that permit, Zone 7 has prepared Storm Water Pollution Prevention Plans (SWPPPs) for its current water treatment plants that detail the actions Zone 7 staff take to prevent releases of pollutants in stormwater runoff from on-site operation and maintenance activities. Current SWPPPs do not address potential releases from water treatment operations. Plant operations include various activities that could release pollutants to surface waters, such as water treatment chemical handling; structural pest control; and sludge handling and drying operations.

A SWPPP would be developed for the proposed Altamont WTP. Proper design of the plant would ensure that spills would be contained and that pollutant releases from on-site activities would be prevented or collected before the next rain storm. Although such activities cannot prevent all pollutant releases, they reduce pollutant discharges to the maximum extent practicable, and reduce pollutant levels in runoff to levels that would not increase pollutant levels in local streams or San Francisco Bay significantly.

The water treatment process would generate a sludge that would be dried on-site and then removed from the site for disposal at an off-site permitted landfill. Sediment or chemicals could be released from the sludge into surface or groundwater if the sludge were not controlled carefully from the point of generation through its final disposal.

If the outside option were selected, drying would occur in sludge drying beds or sludge lagoons (which are, essentially, deeper drying beds). Surface and groundwater quality protection would rely on management procedures to prevent overflows and spills during loading. Water seeping through the base of the drying areas would be collected in a subdrain and returned to the plant for treatment. Over time, alum in the sludge typically settles to the bottom and forms a lining for the beds or lagoons. Before beginning operation of the Altamont WTP, Zone 7 is required to notify the RWQCB, by filing a Report of Waste Discharge, that the operation includes releasing sludge to the drying beds or lagoons. In response to the Report, the RWQCB could require Zone 7 to obtain a permit or waiver (Waste Discharge Requirement) for the drying beds or lagoons; however, it is likely that the RWQCB would exempt from permit requirements any sludge drying areas designed to prevent releases to groundwater.[4] Zone 7 would include water quality protection elements in the final design and operational procedures for the Altamont WTP. These elements would include adequate containment of sludge drying beds or lagoons and sludge drying area capacity adequate for reasonable foreseeable future operating conditions.

The resulting solids would be loaded into trucks for hauling to a landfill. The Altamont WTP would generate 200 to 250 pounds of dry sludge per million gallons of water treated, for a maximum of about 5.25 tons per day, needing up to five sludge-hauling truck trips per week (primarily in the dry summer months). The potential for sludge release during transport would be limited, because accident rates for hauling trucks are low, the hauling distance to the most likely disposal site (Altamont Landfill) would be relatively short, and not all accidents would cause a sludge release.[5] Adequate landfill capacity exists for the disposal of Zone 7's sludge, which would at most comprise 1,300 cubic yards per year. For example, the nearby Altamont Landfill accepts sludge and other "designated wastes." That landfill alone has available capacity of nearly 60 million cubic yards.[6]

As discussed previously in Section 3.2.3, Hydrology, the amount of stormwater runoff leaving any of the proposed Altamont WTP sites would be insignificant as a direct impact, but has the potential to contribute to cumulatively significant effects. Similarly, the load of contaminants in the normal runoff from the selected site would contribute incrementally to the cumulative

pollutant load in the watershed. Without mitigation, the accumulation of non-point source pollutants in stormwater from the watershed could be a significant cumulative impact, when considered as part of the combined effects of known and foreseeable future development. The cumulative effects from the proposed and future impervious surfaces would increase rates of overland flow and associated contaminant transport, contributing to the deterioration of the water quality of stormwater runoff. The eventual result would be the deterioration of water quality in wetlands or downstream reaches of the local drainage ways. Reaches of drainage ways downstream from the site selected for the Altamont WTP, such as Altamont Creek and Arroyo Las Positas, carry stormwater runoff to Alameda Creek and San Francisco Bay. These water bodies also would be subject to cumulative water quality deterioration. The most direct means of reducing or eliminating this cumulative water quality impact is to control stormwater runoff at its source, thereby avoiding the cumulative effect (see Mitigation Measure 3.2.4-1(b) below).

The following measure, recommended by the EIR consultant, would ensure that the SWPPP prepared by Zone 7 operation of the proposed Altamont WTP would reduce pollutant discharges to the maximum extent practicable, thereby reducing potential stormwater runoff impacts to a level of insignificance.

Mitigation Measure 3.2.4-1(a)

- Zone 7 would prepare a SWPPP covering all operational activities at the proposed water treatment plant in accordance with the industrial discharger guidelines of the Alameda Countywide Clean Water Program and the *California Storm Water Best Management Practice Handbook—Industrial/Commercial* (including the Bay Area preamble).[7] Prior to initiating water treatment activities at the Altamont WTP, Zone 7 would submit the SWPPP to the San Francisco Bay RWQCB for review and approval. If written approval were not received within 90 days of the initiation of operations at the treatment plant, Zone 7 would contract with a Registered Environmental Assessor or a Professional Engineer with expertise in stormwater pollution prevention planning to conduct a peer review of the plan and ensure that the plan would reduce pollutant discharges to the maximum extent practicable.

The following mitigation measure, recommended by the EIR consultant, addresses the cumulative impacts of increased runoff, and reduces them to an insignificant level for the Altamont WTP project.

Mitigation Measure 3.2.4-1(b)

- Implement Mitigation Measure 3.2.3-2 in Section 3.2.3, Hydrology.

Mitigates:	Impact 3.2.4-1 (I)
Implementation:	Include in construction drawings and specifications prior to approval of final project plans.
Responsibility:	Zone 7 Water Agency Design and Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

NOTES - Water Quality

1. Relatively small portions of the delta also were listed as being impaired by high electrically conductivity and organic enrichment/low dissolved oxygen.

2. Numerous comparative analyses have been performed. For example, see the Santa Clara Valley Urban Runoff Program's *Metals Control Measure Plan*, February 1997.

3. L.A. Roesner, "Quality of Urban Runoff" in *Urban Stormwater Hydrology*, Water Resources Monograph 7, D.F. Kibler, editor, American Geophysical Union, Washington, D. C., 1982.

4. Wil Bruhns, Senior Water Resources Control Engineer, San Francisco Bay Regional Water Quality Control Board, telephone conversation, April 25, 2000.

5. California Department of Transportation, *1991 Accident Data on California State Highways (Road Miles, Travel, Accidents, Accidents Rates)*, 1992 indicates that 0.9 accidents occur per million freeway miles and 2.51 accidents occur per million non-freeway miles.

6. California Integrated Waste Management Board, California Waste Facilities, Sites, & Operations Database, April 27, 2000.

7. The most up-to-date version of the Manual should be used (Camp, Dresser and McKee, Inc., Larry Walker Associates, Uribe and Associates, and Resource Planning Associates, California Storm Water Best Management Practice Handbook -- Industrial/Commercial, California State Water Resources Control Board, Sacramento, CA, March 1993). The California Storm Water Quality Task Force is preparing corrections for this manual and anticipates revising the manual.

3.2.5 HAZARDOUS MATERIALS AND PUBLIC SAFETY

Introduction

The treatment processes at a water treatment plant may require the use of hazardous materials that could pose health and safety concerns to workers, visitors, and nearby residents. Certain activities can pose a risk of exposure to people or the environment because of routine or accidental releases, or as a result of possible contamination related to past uses of the property. Transportation of hazardous materials in the project area also can present risks.

For purposes of this EIR, hazardous materials are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose substantial hazards to human health or safety, or to the environment, particularly if released. Hazardous wastes are a subset of hazardous materials. They pose substantial hazards to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

The two probable water treatment processes proposed for the Altamont Water Treatment Plant (WTP) could be used at any of the three possible sites. Therefore, the handling and disposal of hazardous materials and wastes at the Altamont WTP would be essentially the same, regardless of the site selected. However, the potential receptors (human residents as well as nearby plants and animals) at the various sites would differ depending on distance from the site. Furthermore, issues related to potential site contamination and transportation of hazardous materials and wastes would depend, at least to some extent, on the location of the water treatment plant.

This section discusses the baseline conditions at the three sites. It discusses the possible treatment process and chemical usage at the Altamont WTP, and summarizes the regulatory setting applicable to the proposed activities, Zone 7's established health and safety policies and procedures, its safety and regulatory compliance record, and the potential for the project to result in health and safety impacts associated with handling hazardous materials and generating hazardous wastes.

SETTING

Existing Site Conditions

The three potential Altamont WTP sites are currently used for livestock grazing, and none contain buildings. Dyer Road Sites #1 and #5 are approximately four miles to the intersection of Vasco Road and I-580; and Laughlin Road Site #3 is approximately two miles from the I–580. Dyer Road serves relatively little traffic (residential and wind farm maintenance), and Laughlin Road, a two-lane road that connects Laughlin Road Site #3 to Altamont Pass Road.

No hazardous materials are handled at any of the three possible sites. None is listed on the *State of California Hazardous Waste and Substances Sites List* (sometimes called the "Cortese List") prepared pursuant to Government Code Section 65965.5.[1] However, no Preliminary (Phase I) Environmental Site Assessment is known to have been completed for any of the sites.

Existing Zone 7 Water Treatment Plants

The proposed project would not directly affect operations at Zone 7's existing water treatment plants; however, in many ways, operations at these plants may be illustrative of conditions likely at the proposed Altamont WTP. For this reason, existing conditions at the Patterson Pass and Del Valle WTPs are described below. The average annual daily production of treated water was 8.2 million gallons per day (MGD) at the Patterson Pass WTP and 17.9 MGD at the Del Valle WTP for the year 1999, about 62 percent of the projected capacity (42 MGD) of the proposed Altamont WTP.

Various chemicals, some of which are hazardous, are handled at the water treatment plants. The chemicals handled in the greatest quantities are those used directly in water treatment operations:

- sodium hypochlorite or chlorine, used to disinfect drinking water;
- pressurized ammonia gas, used with chlorine for disinfection and to reduce disinfection byproducts; and
- sodium hydroxide, used to control pH and for corrosion control.

Other water treatment chemicals used include alum, ferric chloride, and polymers. The existing water treatment plants also store diesel fuel for operating generators for standby power and for heating.

Table 3.2.5-1 presents the annual use for calendar year 1999, storage, and handling details of the primary hazardous chemicals used at the Patterson Pass and Del Valle WTPs, which include gaseous chlorine (Patterson Pass WTP is converting from gaseous chlorine to sodium hypochlorite within the year), gaseous ammonia, sodium hydroxide, and diesel fuel. The other chemicals used in relatively large quantities (i.e., alum, ferric chloride, and polymers) are not considered hazardous, and are stored as liquids and solids. In 1999 about 400 tons of alum, 41 tons of polymer, and 20 tons of other chemicals were consumed at the Patterson Pass WTP, and about 880 tons of alum, 500 tons of ferric chloride, and 38 tons of polymer are consumed at the Del Valle WTP.[2]

Other chemicals are handled in much smaller quantities, about a total of 20 tons at the Patterson Pass WTP and less than one ton at the Del Valle WTP.[3] These include oils, solvents, and paints used primarily for maintenance purposes. Zone 7 operates a laboratory at Del Valle WTP that handles relatively small quantities of laboratory chemicals, including acids, bases, solvents, dyes, and reagents. Zone 7 operates a smaller laboratory at the Patterson Pass WTP, where even smaller quantities of laboratory chemicals are handled.[4]

Most of the hazardous materials handled at the water treatment plant is consumed through use (they are added to the water during the treatment process). As a result, relatively little hazardous waste is generated. Hazardous wastes from both water treatment plants are stored at a hazardous waste storage facility at the Del Valle WTP. Because Zone 7 generates less than 220 pounds of hazardous waste per month at the two water treatment plants, it is considered a "conditionally exempt small quantity generator" and is subject to somewhat less rigorous storage requirements in terms of accumulation times and record-keeping.[5] The hazardous wastes are disposed of once or twice a year. Zone 7 contracts with a hazardous waste hauler to transport the hazardous wastes to a hazardous wastes disposal facility.[6]

Transportation of Hazardous Materials

Hazardous materials are routinely transported to the Patterson Pass and Del Valle WTPs by truck. During the summer there is usually a truck load every other day. The number of truck trips decreases during other times of the year. The chemicals are delivered separately, and,

TABLE 3.2.5-1
PRIMARY HAZARDOUS MATERIALS USED, STORED, AND HANDLED AT THE PATTERSON PASS WTP AND THE DEL VALLE WTP

	Patterson Pass Water Treatment Plant Annual Water Production 2978 million gallons			
Chemical	**Approximate Annual Usage (tons)**	**Type of Storage**	**Number of Containers**	**Other Details**
Chlorine Gas	49	1-ton cylinders	2 in service; 2 on standby	One chlorinator is used to feed both pre-oxidation point and settled water (for chlorine demand reduction and to enhance water treatability), and the other is used for post disinfection. Chlorine is pulled under vacuum to chlorinators. (If gas line breaks, vacuum pulls air into system and keeps chlorine contained.) Space exists in chlorine storage building for 6 reserve cylinders, including empty cylinders.
Ammonia Gas, pressurized	6.5	625-gallon pressurized steel tank	1	Ammonia gas is fed under pressure near chlorine feed point to form chloramines for disinfection. (Chloramines minimize disinfection byproducts formation.)
Sodium Hydroxide	250	10,000-gallon steel tanks stored outside in a chemical storage facility designed for spill containment	2	Sodium hydroxide is used for pH control to avoid corrosion. Two pumps with one in standby are placed in auto mode for pH adjustment. Special handling includes diluting 50% concentration to 25% concentration to avoid freezing during winter season.
Diesel	5,100 gallons	One 1,000-gallon above-ground storage tank		Diesel is used to power emergency generator, for boiler for heating operation and control building.

(Continued)

TABLE 3.2.5-1 (Continued)

Del Valle Water Treatment Plant
Annual Water Production 6530 million gallons

Chemical	Approximate Annual Usage (tons)	Type of Storage	Number of Containers	Other Details
Aqueous Sodium Hypochlorite	92	8,000-gallon cross-linked polyethylene storage tanks	2	Sodium hypochlorite is used for pre-oxidation (for chlorine demand reduction), disinfection (e.g., to remove viruses), and post disinfection by chloramination.
Ammonia Gas, pressurized	13.5	625-gallon, pressurized steel tank	1	Ammonia gas fed under pressure near chlorine feed point to form chloramines for disinfection. (Chloramines minimize disinfection byproducts formation.)
Sodium Hydroxide	500	8,000-gallon fiberglass tank stored in designated chemical storage area with external wall containment for spills	1	Sodium hydroxide is used for pH control. Two pumps with one in standby are placed in auto mode for pH adjustment. The tanks have seismic strapping to protect against failure during earthquakes.
Diesel	19,400 gallons	One 2,000-gallon above-ground storage tank		Diesel is used to power emergency generator.

Source: Jack Fong, C.E. Zone 7 Water Agency; memorandum on chemical usage for calendar year 1999, March 7, 2000.

because of limited access and parking at the water treatment plants, the truck deliveries are staggered.[7] Table 3.2.5-2 shows the approximate number of truck loads of each chemical that would be transported in a year at the Patterson Pass and Del Valle WTPs. The number of truck loads is estimated on the basis of annual chemical purchases for 1999. About 37 trucks transport hazardous materials to the Patterson Pass WTP each year. About 90 trucks deliver hazardous materials to the Del Valle WTP each year. Common carriers, such as Federal Express and United Parcel Service, also deliver small hazardous materials packages on their normal routes.

TABLE 3.2.5-2
NUMBER OF TRUCK TRIPS CARRYING CHEMICALS/HAZARDOUS MATERIALS TO THE PATTERSON PASS WTP AND THE DEL VALLE WTP

	Approximate Annual Truck Loads	
Chemical	**Paterson Pass WTP**	**Del Valle WTP**
Sodium Hydroxide*	9	21
Chlorine Gas*	8	-
Sodium Hypochlorite*	-	15
Ammonia Gas, pressurized*	13	27
Alum	16	35
PEC (Polyelectrolytic Cation)	10	4
PEA (Polyelectrolytic Anion)	1	5
Diesel*	7	27
Total Hazardous Materials*	37	90
Total	64	134

Note: *These include the hazardous materials.

Sources: Jack Fong, C.E., Zone 7 Water Agency, memorandum, March 7, 2000; Jeff Jones, Safety Officer, Alameda County Flood Control and Water Conservation District, communication with EIP Associates, May 23, 2000; EIP Associates, May 2000.

RELEVANT REGULATIONS

Hazardous materials handling and hazardous waste management are subject to laws and regulations at all levels of government, as summarized below. The discussion also includes a summary of the local regulatory oversight. Zone 7 implements a series of health and safety plans and programs, which are described following the regulatory background information presented below.

Hazardous Materials Management and Emergency Planning

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law, sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials, and to facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored on site, to prepare an emergency response plan, and to train employees to use the materials safely. Businesses that handle certain very hazardous substances must undertake a systematic analysis of their operations, study the potential consequences of possible worst-case accidents, and prepare Risk Management Plans to reduce apparent risks. Risk Management Plans are to include (1) a hazard assessment that evaluates potential releases; (2) a program to prevent accidental releases, including safety precautions, maintenance, monitoring, and employee training measures; and (3) a program to respond to accidental releases and to protect human health and the environment, including procedures for informing the public and local agencies. These laws are implemented locally by the Alameda County Department of Environmental Health. The Alameda County Fire Department enforces certain Fire Code regulations pertaining to hazardous materials storage and safe storage practices of above-ground diesel tanks. The Patterson Pass and Del Valle WTPs handle such materials; however, the Del Valle WTP does not handle quantities of hazardous materials sufficient to trigger Risk Management Plan requirements. The Patterson Pass WTP is registered under the Accidental Release Prevention Program and has a Risk Management Plan.

Building and Fire Safety

The Alameda County Fire Department enforces the California Building Code and California Fire Code. These laws specify management practices for flammable materials, including some packaging and containment requirements. They also set forth appropriate construction standards (e.g., fire separations and fire suppression systems) depending on building occupancy classifications.

Worker Safety

Occupational safety standards exist in federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, it obligates businesses to prepare Injury and Illness Prevention Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers. In cases where certain very hazardous materials, such as chlorine gas, are handled, the Division of Occupational Safety and Health requires a Process Safety Management Plan, which is similar to a Risk Management Plan, but focuses on worker protection.

Hazardous Waste Handling

The U.S. Environmental Protection Agency has authorized the California Department of Toxic Substances Control to enforce hazardous waste laws and regulations in California. Requirements place "cradle-to-grave" responsibility for hazardous waste disposal on the shoulders of hazardous waste generators. Generators must ensure that their wastes are disposed of properly. Legal requirements dictate the disposal requirements for many waste streams (e.g., banning many types of hazardous wastes from landfills). All hazardous waste generators must certify that, at a minimum, they make a good faith effort to minimize their waste and to select the best waste management method available. Hazardous waste laws and regulations are enforced locally by the Alameda County Department of Environmental Health.

Hazardous Materials Transportation

The U.S. Department of Transportation has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The U.S. Postal Service has developed additional regulations for the transport of hazardous materials by mail. U.S. Department of Transportation regulations specify packaging requirements for different types of materials. The U.S. Environmental Protection Agency has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations. In California, the California Highway Patrol, the California Department of

Transportation, and the California Department of Toxic Substances Control play a role in enforcing hazardous material and waste transportation requirements.

Oversight of Contaminated Properties

Depending on specific circumstances, the Alameda County Department of Environmental Health, the San Francisco Bay Regional Water Quality Control Board, the Zone 7 of Alameda County Flood Control and Water Conservation District, or, in extreme cases, the California Department of Toxic Substances Control oversee sites contaminated by hazardous materials releases. The administering agency implements applicable soil and groundwater cleanup laws, including Superfund. Decisions regarding cleanup and future use of a site are typically based on actual and reasonably projected risks present at the site. This approach focuses on the level of risk acceptable for planned land uses.

Hazardous Building Components

Structural building components, particularly in older buildings, sometimes contain such hazardous materials as asbestos, lead, mercury, and other hazardous materials. These materials are subject to various regulatory plans, briefly described in the following paragraph. However, the three sites being considered for the proposed Altamont WTP do not contain any existing buildings or structures. Therefore, the proposed project would not involve demolition of old buildings that could contain hazardous materials and cause potential adverse health or safety effects. According to State and County records, the three sites have not been used as landfills, and, consequently, the possibility of mercury contamination is low. No further discussion of potential contamination caused by demolition is necessary in this EIR.

Zone 7's Health and Safety Programs

Zone 7 has prepared various plans and policies as required by applicable regulations for its two water treatment plants. These programs include a Hazardous Materials Business Plan, a Hazard Communication Plan, a Process Safety Management Plan, an Injury and Illness Prevention Plan, a Risk Management Plan, and a Contingency Plan. These plans and programs are summarized below. Although some of the plans have not been finalized, the procedures have been in use for several years. No citations for plan violations have been issued to Zone 7 during the last five years. The water treatment plants have not been subject to regular inspection for three years.[8]

Hazardous Materials Business Plans[9]

Business Plans (draft working plans) have been prepared for the Patterson Pass and Del Valle WTPs. They include facility maps keyed to hazardous materials inventories, emergency response procedures focused on possible hazardous materials emergencies, employee training plans, and communication plans.[10]

Process Safety Management Plan[11]

Facilities that handle highly hazardous chemicals in excess of certain threshold quantities must prepare a Process Safety Management Plan. At the Patterson Pass WTP more than 1,500 pounds of chlorine is maintained on site. Although anhydrous ammonia is also used, it is well below the threshold limits. Similarly, threshold quantities are not handled at the Del Valle WTP. This Process Safety Management Plan establishes employee reporting, communication, and compliance practices regarding safety and health policies at the Patterson Pass WTP. Zone 7 has a series of training programs for employees working near or with hazardous materials.[12]

Injury and Illness Prevention Plan[13]

The Injury and Illness Prevention Plan sets forth mechanisms for identifying and evaluating work place hazards, investigating accidents, outlining safe work practices, and correcting unsafe or unhealthy conditions. They also describe how employees are trained regarding workplace health and safety, and what records of inspections and training are maintained. The Injury and Illness Prevention Plan also includes an hazard communication program, fire prevention program, evacuation program, emergency response program, and other safety programs.

Risk Management Plan[14]

Zone 7 is required to prepare a Risk Management Plan for the Patterson Pass WTP because the quantity of chlorine at the site exceeds the threshold levels. Because the Del Valle WTP does not handle chlorine gas, it need not be registered under the Accidental Release Prevention Program. The Risk Management Plan identifies the equipment, procedures, maintenance, inspection, and training associated with chlorine; describes the structured assessment of hazards analysis conducted to assess possible effects on employees and offsite public and environmental receptors; provides the results of an offsite consequences analysis; defines a prevention program; emergency response program, and mitigation measures to reduce the

probability and magnitude of accidental release of chlorine; and establishes a schedule and responsibilities for implementation of mitigation measures and auditing of program elements.

Emergency Operations Plan[15]

The Emergency Operations Plan outlines Zone 7's overall emergency management program, including its system of operations during disasters. The plan defines the responsibilities of all personnel within each department by outlining specific steps for emergency preparedness, response and recovery operations. The plan also includes a contingency plan that has guidelines for additional actions to be taken during specific events such as earthquake, fire, flooding, hazardous materials spills, etc.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

For purposes of this EIR, the project would be considered to result in a significant impact if it were to:

- create a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials; or
- impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

These criteria are derived from the CEQA Guidelines.

Method of Analysis

The health and safety analysis for the Altamont WTP is based on the Treatment Process Evaluation Technical Memorandum prepared for the Altamont WTP, and the existing treatment process and health and safety planning and management plans that are currently used at the Patterson Pass and Del Valle WTPs.[16] Two treatment train alternatives were recommended for Altamont WTP: (1) high-rate conventional treatment (clarification-granular media filtration) with ozone, or (2) low-pressure membrane filtration with clarification

pretreatment. These treatment alternatives were recommended because of their abilities to handle the variable raw water quality from the South Bay Aqueduct.

High-rate conventional treatment is appropriate for treating raw water with moderate levels of turbidity and occasional short-term episodes of high turbidity. The recommended treatment train for a high-rate conventional treatment plant with ozone includes flocculation, clarification, ozonation, filtration, and chlorine contactor. Because ozone would be used in the process as a primary disinfectant, chlorine would be added only to provide a residual disinfectant in the distribution system. Ammonia will be added to the treated water, downstream of chlorine addition, to form chloramine residuals.

Low-pressure membrane processes such as microfiltration and ultrafiltration are able to provide an absolute physical barrier for removal of particulate matter and low water microorganisms. Therefore, these processes would not involve the use of large quantities of chemicals for removal of suspended solids.

The Technical Memorandum presents a discussion of the possible chemicals that would be used at the Altamont WTP to accommodate production up to 24 MGD, the number of delivery truck trips that would be involved for transporting these chemicals to Altamont WTP, and the handling and the storage techniques that would be adopted. For illustrative purposes, the quantities of chemicals and the delivery trucks that would be used for a 42 MGD plant have been calculated as a proportion of the quantity that has been proposed for the 24 MGD.

Zone 7's regulatory mechanism with regard to processes at the Altamont WTP would mostly mimic the mechanism at the Patterson Pass and Del Valle WTPs.

Impact 3.2.5-1

The proposed Altamont WTP project would involve storage and handling of hazardous materials such as liquid ammonia, sodium hydroxide, and sulfuric acid, thereby resulting in new risks of human and environmental exposure. (PS)

The following chemicals and hazardous materials may be used in either of the two treatment trains proposed for the Altamont WTP:

- commercial sodium hypochlorite - 12.5%, or on-site sodium hypochlorite
- ammonia (aqueous ammonia hydroxide)
- sodium hydroxide
- alum (aluminum sulfate)
- ferric chloride
- polyaluminium chloride
- cationic polymer
- anionic/nonionic polymer
- sulfuric acid
- diesel or other fuels for power generation
- liquid oxygen
- compressed air (less likely)
- hydrogen peroxide
- activated carbon (granular or powdered)
- carbon dioxide
- petroleum products, oils, and greases
- laboratory chemicals
- cleaning chemicals (surfactant, acid or base, oxidant and/or sequestering agents)

The choice of these chemicals would depend on the choice of the treatment process at Altamont WTP, health and safety issues, capital costs, operations and maintenance, and treatment efficiency to achieve required standards. Some of the chemicals are hazardous in nature. Some others, though non-hazardous, entail risks because of the type of storage and handling techniques adopted. For example, a non-hazardous gas stored under high pressure

has the potential to cause physical injuries during accidents. This analysis adopts a conservative approach and assumes that any of the above chemicals may be used.

Table 3.2.5-3 presents the quantities of the hazardous materials and other chemicals that may be used at the Altamont WTP. As mentioned above, the quantities of chemicals are calculated

for a 42 MGD plant in proportion to the quantities of chemicals presented in the treatment process evaluation technical memorandum for a 24 MGD plant. The quantities of chemicals that would be used at the Altamont WTP illustrate the types of risks that could be associated with the proposed project. It should be noted that the quantities of highly hazardous chemicals that could be used at the Altamont WTP are much less than those used at the Patterson Pass WTP and would be even less if membrane filtration is chosen as the treatment train for the Altamont WTP. Nonetheless, the use of such chemicals pose hazardous risks, which, under CEQA, needs to be addressed as a potential impact of the proposed project. Table 3.2.5-4 shows some of the hazards and health risks associated with the chemicals that may be used for the Altamont WTP treatment process. The hazards posed by chemicals vary. Some chemicals can pose physical hazards (e.g., chemical burns) or health hazards (e.g., poisoning), including potential acute or chronic illnesses. The properties and health effects of different chemicals are unique to each chemical and depend on the extent to which an individual is exposed.

The target group that would be affected by risk of exposure to hazardous materials storage and handling include workers and individuals on site, and the community and the environment in the vicinity surrounding the proposed Altamont WTP. The project-related effects of hazardous materials handling and storage would generally be limited to the immediate areas where the materials would be located, because this is where exposure would be most likely. Only the worst-case scenarios would result in exposure at more distant locations. For this reason, the individuals most at risk would be the Altamont WTP employees or others in immediate proximity to the hazardous materials. The risk to the health and safety of the community and environment would depend on the types and volumes of hazardous chemicals handled at the water treatment plant. The routes through which these individuals could be exposed include inhalation, ingestion, contact, and other accidents.

As described in the Hazardous Materials Setting, Zone 7 is required to comply with health and safety and environmental protection laws and regulations. To accomplish this, and to otherwise provide a safe and healthy environment for its employees at the Altamont WTP, Zone 7 would be required to prepare a series of health and safety plans and implement programs similar to the ones at the Patterson Pass and Del Valle WTPs. Required plans

TABLE 3.2.5-3
ESTIMATED MONTHLY CHEMICAL USAGE AT THE ALTAMONT WTP[1]
(gallons per month)

Chemical	For Production Capacity of 24 MGD Water	For Production Capacity of 42 MGD Water
Aqueous sodium hypochlorite	1,450	2,500
Ammonia (aqueous ammonia hydroxide)	800	1,400
Sodium Hydroxide (caustic soda)	3,300	5,800
Alum[2]	13,600	23,800
Ferric Chloride[2]	13,000	23,300
Polyaluminum Chloride[2]	4,300	7,500
Cationic Polymer	1,280	2,250
Anionic/nonionic Polymer	600	1,050
Sulfuric acid	1,050	1,840
Activated Carbon (in pounds per month)	59,900	104,920
Carbon dioxide	not available	not available
Ozone (assuming ozone dose of 2 to 3.5 mg/l)*	approx. 200 to 700 pounds/day	approx. 200 to 950 pounds/day

Note:

1. The chemical estimates presented in Table 3.2.5-3 are based on Treatment Process Evaluation Technical Memorandum. Estimates for the 42 MGD plant are a proportion of that for the 24 MGD plant.

2. These are the primary coagulant options; only one of the three would be used on a monthly basis at the WTP.

* Ozone would be produced on site either from liquid oxygen or compressed air, most probably liquid oxygen; the predicted range of ozone dosages will vary as a function of settled water pH and the disinfection inactivation goal.

Source: Montgomery Watson, Zone 7 Altamont WTP - Treatment Process Evaluation Technical Memorandum, May 31, 2000; Camp Dresser & McKee Inc., Ozone Feasibility Study, Zone 7 Flood Control and Water Conservation District, Alameda County, February 1991; EIP Associates, May 2000.

TABLE 3.2.5-4
HEALTH RISKS ASSOCIATED WITH CHEMICALS THAT MAY BE USED AT THE ALTAMONT WTP

Chemical	Health and Safety Risks
Sodium hypochlorite	Highly unstable. Ingestion may cause corrosion of mucous membrane, esophageal or gastric perforation, laryngeal edema. Inhalation may produce severe bronchial irritation, or pulmonary edema. Prolonged skin contact may cause irritation. Federal OSHA Permissible Exposure Limit (PEL) for chlorine and the Threshold Limit Value (TLV)* is a ceiling limit of 0.5 parts per million (ppm) or 1.5 milligrams /cubic meter (mg/m^3).
Liquid ammonia - aqueous ammonia and ammonium hydroxide	Colorless liquid with intense, pungent, and suffocating odor. Inhalation of concentrated vapor causes edema of respiratory tract, spasm of the glottis, and asphyxia. Treatment must be prompt to prevent death. The TLV* ceiling limit is 35 ppm or 24 mg/m^3.
Sodium Hydroxide (Caustic soda)	Rapidly absorbs carbon dioxide and oxygen and is highly corrosive to all tissues. Can cause vomiting, prostration, and collapse. Constrictive scarring may result. Inhalation of dust or concentrated mist may cause damage to respiratory tract. The TLV* ceiling limit is 2 mg/m^3.
Alum	Non-hazardous.
Ferric Chloride	Anhydrous form is a mild irritant. Ferric Chloride is also very corrosive.
Polyaluminum chloride	Non-hazardous.
Polymers	Generally non-hazardous.
Sulfuric acid	Viscous and extremely corrosive liquid emitting choking fumes of sulfur trioxide. The TLV* ceiling limit is 3 mg/m^3.
Ozone	Unstable. High concentrations may cause severe irritation of respiratory tract and eyes. The TLV* time weighted average (TWA) is 0.05 to 1 ppm depending on type of work i.e. heavy, moderate, or light work.
Liquid Oxygen	Inflammable.
Hydrogen peroxide	Strong oxidizer; undiluted form can cause burns of skin, mucous membrane. The TLV* time weighted average (TWA) is 1 ppm.

(Continued)

TABLE 3.2.5-4 (Continued)

Chemical	Health and Safety Risks
Activated Carbon	Non-hazardous.
Carbon dioxide	Humans cannot breathe air containing more than 10% carbon dioxide without losing consciousness. The TLV* time weighted average is 5,000 ppm or 9,000 mg/m^3 and the ceiling limit is 30,000 ppm or 54,000 mg/m^3.
Laboratory and cleaning chemicals	Hazardous depending on the type and volume of chemicals.
Diesel	Combustible.

Note:

* Threshold Limit Values (TLV) refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. TLVs are based on available information from industrial experience; from experimental human and animal studies; and when possible, from a combination of the three. The ceiling limit is assessed by sampling airborne concentrations over a period not exceeding 15 minutes. The time weighted average (TWA) is calculated for the time that nearly all the workers may be repeatedly exposed, day after day, without adverse effect, usually an 8-hour workday and a 40-hour workweek.

Source: Merck & Co., Inc., The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals (tenth edition), 1983. American Council of Governmental Industrial Hygienists (ACGIH), *1997 TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices*, 1997. Alameda County Zone 7 Water Agency, Risk Management Plan for Patterson Pass Water Treatment Plant, June 1999.

would include a Business Plan, an Injury and Illness Prevention Plan, a Contingency Plan, and a Hazard Communication Plan. Chlorine gas is not planned to be used at the Altamont WTP, and therefore a Process Safety Management Plan would not be required. These plans specifically address health and safety issues pertaining to the most acutely hazardous materials handled at the site. These plans would include measures such as the following to reduce health and safety risks on site:

- Keep hazardous materials containers closed and provide secondary containment when not in use.
- Encourage wearing face masks or respirators, eye protection, gloves, shoes, and other protective clothing when working with hazardous materials, as necessary.
- Prohibit eating or drinking near hazardous materials.
- Prohibit smoking near hazardous materials.

- Encourage washing hands and work areas frequently.
- Organize and encourage participation in awareness, educational programs for staff handling hazardous materials, and emergency response training.
- Maintain emergency equipment (e.g., safety showers, emergency eye washes, first aid kits).
- Provide appropriate lips on shelves where hazardous materials are stored and other restraints where necessary.
- Segregate incompatible hazardous materials and store flammable materials in fire-rated cabinets.

These health and safety plans would help mitigate potential impacts to the Altamont WTP workers and others on-site. For the most part, the health and safety procedures that protect workers and other individuals in the immediate vicinity of hazardous materials would also protect the more distant community and environment (e.g., local air quality and biota).

The design for the chemical feed systems and chemical storage areas has not yet been established. Faulty design of the chemical feed system and the storage areas could increase the probability of accidents and increased risks with handling and storage of hazardous materials.
Mitigation measures, which include appropriate design features from the Technical Memorandum for chemical storage and handling systems, would reduce risks to health and safety.

As in the case of the Patterson Pass and Del Valle WTPs, the Alameda County Fire Department would provide emergency response services to the Altamont WTP. The Livermore National Laboratory, which has hazardous materials emergency response capabilities, would be available to respond to the site under a mutual aid agreement with the Alameda County Fire Department.

In summary, although Zone 7 would prepare various plans as required by law to ensure the health and safety of workers, the community, and the environment, improper design of the chemical handling and storage systems at Altamont WTP could increase potential risks of accidents. The following mitigation measures, to be included as part of the proposed project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-1

The design of chemical storage and handling systems at the Altamont WTP typically would incorporate the types of features listed below. The designs would not be limited to these examples but could incorporate similar features, which would accommodate safe storage, and handling of hazardous materials and would reduce the potential for accidental spills.

- Provide full containment of stored chemicals in storage facilities and during truck deliveries.
- Design discharging piping to provide a large degree of operational flexibility.
- Design chemical diffusers to provide uniform chemical distribution into process flow without clogging.
- Use construction materials that are compatible with the chemicals to be fed.
- Use chemical piping that is double walled or contained within a trench designed to prevent leaks if a pipe break occurs.
- Store chemicals in an independent storage area that is easily accessible by chemical delivery trucks.
- Provide a secondary containment wall with a height sufficient to contain the volume of the largest storage tank in the event of a leak.
- Use chemical storage tanks that are specially designed with concrete containment pads.
- Equip storage areas with monitoring devices that conform to OSHA and Uniform Fire Code requirements for the detection of chemical concentrations in ambient air in case leaks occur.
- Provide a chemical washdown holding tank to divert chemical spills or rainfall run-off from chemical delivery and storage areas.

Mitigates:	Impact 3.2.5-1 (I)
Implementation:	Include in design and construction drawings and specifications prior to the approval of final plans, and make part of the construction contract.
Responsibility:	Zone 7 Water Agency Capital Projects Group
Monitoring:	Alameda County Department of Environmental Health

Impact 3.2.5-2

The proposed Altamont WTP project would result in transportation of hazardous materials to the site, which could create new risks of human and environmental exposure. (PS)

The likelihood of a transportation accident involving chemicals is closely linked to the number of chemical truck deliveries. According to the Treatment Facilities Site Feasibility Technical Memorandum, the production of 24 MGD of water at the Altamont WTP would create about seven truck trips per month to deliver chemicals to the site during a maximum production month.[17] Using the same proportions, a 42 MGD plant would result in about 12 truck trips for the same period.

The probability of an accident during transit can be estimated from data compiled by the California Department of Transportation (Caltrans). According to Caltrans, transportation accidents are infrequent: fewer than 1.2 vehicle accidents occur for every million vehicle miles traveled on rural non-freeway roads in Alameda County. On the rural freeways in the County, about 0.55 accidents occur per million vehicle miles traveled.[18] These data apply to all types of vehicles and do not distinguish between accidents that involve trucks with hazardous materials and those without. Vehicles carrying hazardous materials in the project vicinity would be expected to experience similar accident probabilities. Because only a fraction of any possible accidents involving vehicles carrying hazardous materials would be expected to actually affect the integrity of the containers on board, few such accidents would involve a release. For this reason, the following analysis presents a very conservative view of the probability of a release.

Trucks carrying hazardous materials would travel up to about 4 miles from the highway to any one of the potential sites (i.e., a maximum of about 8 miles round trip to and from I-580). There could be as many as 144 hazardous materials shipments in a year to the selected water treatment plant site. Given the distance and the maximum number of shipments anticipated each year, the probability of a vehicle accident involving a hazardous materials shipment in any particular year is about 0.001. This means that, each year, the probability of an accident involving a hazardous material shipment on the local roads from the highways is less than one

in about 1000 shipments.[19] The accidents on the highways as stated above are less probable than on rural non-highway roads. This calculation is very conservative and, as previously mentioned, an accident involving an actual release of hazardous materials during transport can be concluded to be even less probable. Small differences in the number of shipments anticipated with the Altamont WTP would not affect the conclusion that accidents involving hazardous materials shipments would be very infrequent.

The U.S. Department of Transportation (DOT), the U.S. Postal Service, and the California Department of Health Services specify packaging requirements for hazardous materials and wastes that limit the potential for packages to fail on impact. These requirements reduce the potential for hazardous materials releases to occur in the unlikely event of a vehicle accident. Because all hazardous materials transported to the water treatment plant site would be packaged in accordance with DOT requirements, containers would be unlikely to release their contents in the event of an accident, and the consequences of a vehicle accident involving hazardous materials in the project area would be minimal. If used at the Altamont WTP, chlorine poses the greatest level of concern because the consequences of a chlorine release in transport could be serious.

Although the probability of an accident is low, and shipping container requirements would limit the potential consequences of a possible accident, this probability could be affected by the design of the local roads and the on-site service roads. Improper road design could lead to more truck accidents. The site plan for the Altamont WTP and the design of the on-site access and service roads has not been finalized. Thus, the transportation of hazardous materials to the Altamont WTP could have a potentially significant effect. The following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-2

The design of the on-site access and service roads to the Altamont WTP would incorporate the types of features listed below to minimize transportation hazards. The designs would not be limited to these features, but could incorporate similar features which would reduce the probability of accidents.

- The on-site access road would be designed with a minimum width of 24 feet. Other service roads would be designed with a minimum width of 16 feet.

- The site plan would be designed such that all transport vehicles would have looped access and not have to back up at any point during delivery of

chemicals. A minimum 60-foot turning radius would be allowed for truck deliveries.

- Roadways within the site would provide service access to all sides of the Altamont WTP facilities. Delivery of chemicals would be away from the center of general operations and visitors.

- Truck traffic would be separated from visitor traffic to the maximum extent possible.

Mitigates:	Impact 3.2.5-2 (I)
Implementation:	Include in design and construction drawings and specifications prior to the approval of final plans, and make part of the construction contract.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.5-3

Excavation of the potential sites for construction of the foundations of the various units of the treatment plant, and excavation for some of the units like the sludge drying bed, could expose construction personnel and members of the public to existing soil and groundwater contamination, if any exists. (PS)

The proposed project would involve excavation for building foundations and the construction of sludge drying beds and other treatment units. Soil and groundwater conditions at the possible sites have not been analyzed for hazardous materials, and the sites do not appear on the *State of California Hazardous Waste and Substances Sites List* (Cortese List).[20] Although the past use of the sites for agricultural purposes suggests a low probability of soil or groundwater contamination, steps to characterize the potential for contamination are needed to ensure that the project would not create unacceptable risks. For example, past uses such as pesticides application for farming could result in such contamination. Once a site has been selected for the Altamont WTP, a records search during the acquisition process would be needed to verify whether or not activities other than grazing occurred on the site.

If soil in these areas were found to be contaminated, earth-moving activities undertaken without appropriate safeguards would have the potential to expose workers, and possibly the public, to chemicals in the soil. Exposure would most likely occur through skin contact or inhalation. Workers directly engaged in on-site activities would face the greatest potential for exposure. The public could be exposed if construction site access were insufficiently controlled or if contaminated soil were to become airborne. Any contaminated soil found on

site would need to be managed as determined by the Alameda County Department of Environmental Health and other appropriate oversight agencies, and residual risks to future site occupants would need to be kept within acceptable levels. Without such measures, excavation could create a hazard through the inappropriate management and disposal of hazardous materials.

If remediation were deemed necessary by the Alameda County Department of Environmental Health or other appropriate oversight agencies, worker and public health and safety requirements would apply. Potential adverse effects of remediation would be minimized through legally required safety and hazardous waste handling precautions. For hazardous waste workers, California Division of Occupational Safety and Health regulations mandate an initial 40-hour training course and subsequent annual training review. Additionally, site-specific training would be required for some workers. These measures, along with the application of cleanup standards subject to review by responsible agencies, would serve to protect public health and the environment during site remediation, thereby minimizing potential adverse effects.

If the records search of the past uses of the selected site confirmed its use for activities with a potential of contaminating the soil or groundwater, the following mitigation measure, included as part of the proposed project, would reduce this impact to an insignificant level. If the historical uses of the selected site confirmed only grazing uses, mitigation would not be needed.

Mitigation Measure 3.2.5-3

- Zone 7 would prepare a Phase I Environmental Site Assessment for areas of the preferred project site where earth-moving activities could occur. The investigation would list current and past uses of the lot, review environmental agency databases and records, report site reconnaissance observations, and summarize potential contamination issues, including any that warrant further investigation. The Phase I Environmental Site Assessment would be completed by a Registered Environmental Assessor or a similarly qualified professional prior to initiating earth-moving activities at the site.

- If determined to be necessary as a result of the Phase I investigation, Zone 7 would prepare a Phase II Environmental Site Assessment. Soil and groundwater samples would be collected as directed by the site assessment consultant. Sampling would extend at least to depths proposed for excavation. The samples would be analyzed to identify and quantify any contamination. The Phase II Environmental Site Assessment would be completed by a

Registered Environmental Assessor or a similarly qualified professional prior to initiating earth-moving activities at the site. Site work would be performed in consultation with the Alameda County Department of Environmental Health and other agencies, as appropriate.

- If soil or groundwater conditions warrant the preparation of a Site Safety and Health Plan (a California Division of Occupational Safety and Health requirement for work at hazardous waste sites), in addition to measures that protect on-site workers, the plan would include measures to minimize public exposure to contaminated soils. Such measures would include dust control, appropriate site security, restriction of public access, and posting of warning signs, and would apply from the time of surface disruption through the completion of earthwork construction.

Mitigates:	Impact 3.2.5-3 (I)
Implementation:	Include in project specifications, and make part of the site preparation contract.
Responsibility:	Zone 7 Water Agency, Safety and Emergency Services
Monitoring:	Alameda County Department of Environmental Health

Impact 3.2.5-4

The project would result in relatively little hazardous waste generation. (I)

The project would involve some hazardous waste generation. Because most of the hazardous materials handled on site would be consumed through use, relatively little hazardous waste would be generated. The existing water treatment plants generate so little hazardous waste that they are considered conditionally exempt small quantity generators, and are given some measure of regulatory relief in their on-site waste handling. Nevertheless, Zone 7, pursuant to State and federal legal requirements, disposes of its hazardous materials using authorized waste handlers. Shipments are tracked on hazardous waste manifests that ensure that the waste is delivered to its intended disposal site. With each shipment, Zone 7 certifies that it has made a "good faith effort" to minimize its waste generation. Therefore, the effect of the project would be insignificant.

Mitigation Measure 3.2.5-4

None required. (I)

Impact 3.2.5-5

Project-related hazardous materials use could contribute to cumulative human and environmental health and safety issues, including hazardous materials transportation, hazardous waste generation and disposal, and demands for emergency response capabilities. However, the cumulative effect would not be sufficient to cause an adverse impact. (I)

The health and safety hazards posed by most hazardous materials are typically local in nature. They generally do not combine in any cumulative sense with the hazards of other projects. Possible exceptions, however, include transportation of hazardous materials and waste disposal. The need to respond to hazardous materials emergencies could also increase as a result of cumulative development.

Transportation. Hazardous materials are transported on virtually all public roads, particularly because all motor vehicles contain hazardous materials (e.g., fuel) in addition to any hazardous cargo that may be on board. Because of the health and safety measures included as part of the project, the Altamont WTP would contribute little to cumulative transportation hazards. The effects of transporting hazardous materials would continue to be addressed by regulatory requirements. Packaging requirements for hazardous materials and wastes established by the U.S. Department of Transportation, the U.S. Postal Service, and the U.S. Environmental Protection Agency would minimize the potential consequences of possible accidents during transport. The vehicle accident rate is very low and not all accidents would release hazardous materials. For these reasons, the cumulative impact of potential transportation-related accidents would be insignificant.

Hazardous Waste Disposal. Hazardous waste generation from any impact would contribute incrementally to cumulative increases in hazardous waste generation in Alameda County and California at large. However, because very little hazardous waste would be generated at the water treatment plant, particularly when compared to the volume generated throughout the region, it would not make a substantial contribution to cumulative hazardous waste disposal capacity or handling issues.

Emergency Response. The Altamont WTP project and planned future development in Alameda County and the nearby cities could incrementally increase demands for hazardous materials emergency response services. However, the increase caused by the water treatment plant would not be so large as to substantially increase the likelihood that two major hazardous materials incidents would occur simultaneously. Furthermore, development anticipated under the County and city General Plans is not expected to interfere with emergency response plans

or emergency evacuation plans. Because the distance between the chosen Altamont WTP site and the emergency responders (e.g., Lawrence Livermore National Laboratory) would not change, hazardous materials emergency response times would not be expected to change substantially.

Mitigation Measure 3.2.5-5

None required. (I)

NOTES - Hazardous Materials and Public Safety

1. California Department of Toxic Substances Control, *State of California Hazardous Waste and Substances Sites List*, April 1988.

2. Jack Fong, C.E., Project Manager, Zone 7 Water Agency, letter to EIP Associates, March 7, 2000.

3. Jack Fong, C.E., Project Manager, Zone 7 Water Agency, letter to EIP Associates, March 7, 2000.

4. Jeff Jones, Safety Officer, Zone 7 Water Agency, telephone conversation with EIP Associates, May 23, 2000.

5. Touchstone Environmental Inc., The Complete Guide to Hazardous Materials Enforcement and Liability, p. VI-12c, July 1999.

6. Jeff Jones, Safety Officer, Zone 7 Water Agency, telephone conversation with EIP Associates, May 23, 2000.

7. Jeff Jones, Safety Officer, Zone 7 Water Agency, telephone conversation with EIP Associates, May 25, 2000.

8. Alameda County Flood Control and Water Conservation District, Zone 7 Water Agency, *Hazardous Materials Management Plan (draft)*, revised June 2000.

9. Keith Jackson, Safety Officer, Safety and Emergency Services, Zone 7 Water Agency, facsimile, EIP Associates, August 10, 2000.

10. Keith Jackson, Safety Officer, Safety and Emergency Services, Zone 7 Water Agency, facsimile, EIP Associates, August 10, 2000.

11. Zone 7 Water Agency, *Process Safety Management Program Policies and Procedures Manual for Patterson Pass Water Treatment Plant,* May 1998.

12. Keith Jackson, Safety Officer, Safety and Emergency Services, Zone 7 Water Agency, facsimile, EIP Associates, August 10, 2000.

13. Zone 7 Water Agency, *Injury and Illness Prevention Program,* (revised) July 1997.

14. Zone 7 Water Agency, *Risk Management Plan for Patterson Pass Water Treatment Plant,* June 1999.

15. Zone 7 Water Agency, *Emergency Operations Plan,* (revised) March 1999.

16. Montgomery Watson, *Zone 7 Altamont WTP - Treatment Process Evaluation Technical Memorandum,* May 31, 2000.

17. Montgomery Watson, *Zone 7 Altamont WTP - Treatment Facility Site Feasibility Technical Memorandum,* May 30, 2000.

18. State of California, Business, Transportation and Housing Agency, Department of Transportation, Traffic Operations Program, *1998 Accident Data on California State Highways,* May 1999.

19. 1.2 vehicle accidents expected for every 1,000,000 vehicle miles traveled on a rural road; maximum vehicle miles expected from project (from highway to site) = 144 x (4 x 2) = 1,152 miles; therefore, probability of vehicle accidents = (1,152 x 1.2) / 1,000,000 = 0.001 = 1/~1,000.

20. California Department of Toxic Substances Control, *State of California Hazardous Waste and Substances Sites List*, April 1988.

3.2.6 AIR QUALITY

Introduction

This section addresses ambient air quality conditions regionally and locally in eastern Alameda County and describes State and federal regulations and plans to achieve air quality standards. Air emissions related to construction and long-term operation of the proposed project are estimated and compared to the State and federal air quality standards. The air quality setting and potential impacts during construction and operation would be largely similar for each of the potential sites. Where site-specific differences would occur, they are noted below.

Sources of Information

Background data for this analysis is derived from annual air quality data and planning-level emission inventory data from the Planning and Technical Support Division of the California Air Resources Board. Other regional characteristics and the method for analysis are taken from the Bay Area Air Quality Management District's (BAAQMD) *CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (1996, Revised 1999).

SETTING

Regional Conditions

Climate

The San Francisco Bay Area's regional meteorological conditions are cool and dry in the summers and mild and moderately wet in the winters. Daytime sea breezes provide fresh air to the Bay Area, but also tend to cause temperature inversions by positioning cool surface air underneath warmer upper-air. The temperature inversions limit vertical motion of pollution and cause contaminant potential to be the highest in the sheltered valleys throughout the region and in the subregions that are not directly affected by the marine air entering through the Golden Gate.

The Zone 7 service area, located in the eastern portion of Alameda County in the Livermore Valley, is sheltered from the fresh sea breezes that flow through the Golden Gate. Pollutants from the urbanized areas of San Francisco, Alameda, Contra Costa, and Santa Clara Counties can be transported into the Livermore Valley through gaps in the East Bay Hills and the Diablo Valley to the north. Because of the surrounding high terrain, the upwind sources of

pollution, and local sources of pollution, the contaminant potential in the Livermore Valley area generally is higher than in most other locations in the Bay Area.[1]

Temperatures in the Livermore Valley depend on air movement into the valley. Average summertime highs can range above 90 degrees Fahrenheit with extremes in the 100s. In the coldest winter months, December and January, average lows are usually below 40 degrees with extremes in the high teens and 20s.[2]

Regional Air Quality

The California Air Resources Board (CARB) compiles inventories and projections of carbon monoxide, reactive organic gases, nitrogen oxides, sulfur dioxide, and particulate matter emissions for air quality planning purposes in the Bay Area. Table 3.2.6-1 presents a summary of the emissions inventory and trends of air pollutants for the Bay Area Air Basin and Alameda County. The most recent planning inventories prepared by CARB are for the baseline year of 1996 and the future year 2010. Substantial reductions in carbon monoxide emissions forecast to occur between 1996 and 2010 reflect the stringent emission controls that have been or will be imposed on motor vehicles and stationary sources. Particulate matter emissions are forecast to increase, mostly because of the continued growth in motor vehicle travel in the Bay Area. Sulfur dioxide emissions also are forecast to increase throughout the region because of projected increases in industrial activity.

The nine-county San Francisco Bay Area Air Basin has a history of recorded violations of federal and State ambient air quality standards for ozone, carbon monoxide, and particulate matter (PM_{10}). Since the early 1970s, substantial progress has been made toward controlling these pollutants. The progress has led the area to meeting all State and federal standards except those for ozone and PM_{10}. The Bay Area is an ozone nonattainment area for State and federal purposes. For PM_{10}, the Bay Area does not meet the State standard, but does meet the federal standard.

Site-Specific Conditions

Local Air Quality

The Bay Area Air Quality Management District (BAAQMD) operates an ozone and particulate matter air quality monitoring station in Livermore on Old 1st Street. Ozone concentrations in

TABLE 3.2.6-1
CRITERIA POLLUTANT EMISSIONS INVENTORY AND PROJECTIONS
(TONS/DAY - ANNUAL AVERAGE)

Bay Area	CO	ROG[1]	NO_x	SO_x	PM_{10}[2]
1996 Inventory					
Total Emissions	3,100	490	540	75	160
On-Road Motor Vehicle Emissions	2,300	240	300	4	8
2010 Forecast					
Total Emissions	1,800	330	340	86	210
On-Road Motor Vehicle Emissions	960	76	160	4	6
Alameda County					
1996 Inventory					
Total Emissions	630	100	10	7	30
On-Road Motor Vehicle Emissions	480	51	70	1	2
2010 Forecast					
Total Emissions	370	71	69	10	38
On-Road Motor Vehicle Emissions	210	16	38	1	1

Notes:
1. ROG: Reactive organic gases (excluding emissions from natural vegetation).
2. $PM_{10:}$ Road Motor Vehicle Emissions category in this table does not include paved road dust generated by traffic.

Source: California Air Resources Board, Emissions by Category, 2000. Available at: www.arb.ca.gov/emisinv/eib.htm.

the Bay Area for the years of 1995 through 1998 were highest at this station. For those previous years, ozone concentrations exceeded the federal standards on as many as eleven days per year and the State standards were exceeded on as many as 22 days per year. During the same period, the State 24-hour particulate matter standards were exceeded on less than 5% of the observations. No violations of annual or federal standards for particulate matter were recorded at the Livermore station.[3] Although the air quality data show that the region has made progress toward meeting the standards, the ongoing violations in the more sheltered portions of the region (including the Livermore Valley) indicate that ongoing efforts to control emissions generated elsewhere in the region still are needed.

Local Air Emission Sources

Laughlin Road Site #3 is near the BFI Landfill on Vasco Road, which is a source of emissions from ongoing waste placement operations and landfill gas management. Otherwise, the land uses surrounding the possible Altamont WTP sites are primarily open space, light agricultural,

and roads. Each of the sites under consideration has nearby residential land uses. Residences near the potential sites would include only small stationary sources of air pollutants (e.g., water heaters, space heaters, or lawnmowers).

Applicable Policies and Regulations

Ambient Air Quality Standards

Federal, State, and local laws and regulations form the foundation for controlling air pollution. The federal Clean Air Act, including amendments of 1990, and the California Clean Air Act of 1988 specify that federal and State regulatory agencies set upper limits on the airborne concentrations of six criteria air pollutants. National Ambient Air Quality Standards exist for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter, and lead.[4] Reactive organic gases (ROG) and oxides of nitrogen (NO_x) also are regulated as precursor contaminants that react in the atmosphere to form ozone, and particulate matter is regulated as inhalable particulate matter less than 10 microns in diameter (PM_{10}).

The federal and State standards for these pollutants are summarized in Table 3.2.6-2. The standards are upper limits designed to protect all segments of the population including those most susceptible to the pollutants' adverse effects (e.g., the very young, the elderly, people weak from illness or disease, or persons doing heavy work or exercise).

Air Quality Management Plans

The federal Clean Air Act, as amended, and the California Clean Air Act provide the legal framework for attaining and maintaining the ambient air standards. Both the federal and State acts require that the California Air Resources Board designate as "nonattainment areas" portions of the State where federal or State ambient air quality standards are not met. Where a pollutant exceeds standards, the acts require implementation of air quality management plans that demonstrate how standards will be achieved. These laws also provide the basis for the implementing agencies to develop mobile and stationary source performance standards.

The BAAQMD is the primary agency responsible for planning, implementing, and enforcing federal and State ambient standards in the Bay Area. In 1999, the BAAQMD prepared a revision to the region's State Implementation Plan (SIP) for ozone. The SIP revision was prepared for the region because of exceedances of the federal ozone standard. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the

TABLE 3.2.6-2
FEDERAL AND STATE AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standard[1]	Federal Standard[2]
Ozone	1-hour	0.09 ppm	0.12 ppm
	8-hour	—	0.08 ppm
Carbon Monoxide	1-hour	20 ppm	35 ppm
	8-hour	9.0 ppm	9 ppm
Nitrogen Dioxide	1-hour	0.25 ppm	—
	Annual Average	—	0.053 ppm
Sulfur Dioxide	1-hour	0.25 ppm	—
	3-hour	—	0.5 ppm
	24-hour	0.04 ppm	0.14 ppm
	Annual Average	—	0.03 ppm
Particulate Matter (PM_{10})	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$
	Annual Geometric Mean	30 $\mu g/m^3$	—
	Annual Arithmetic Mean	—	50 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	24-hour	—	65 $\mu g/m^3$
	Annual Arithmetic Mean	—	15 $\mu g/m^3$
Lead (Pb)	30-day Average	1.5 $\mu g/m^3$	—
	Calendar Quarter	—	1.5 $\mu g/m^3$

Notes:
ppm = parts per million by volume
$\mu g/m^3$ = micrograms per cubic meter
— = No standard exists for this category
1. California standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter (PM_{10}) are values that are not to be exceeded.
2. The form of the federal standards (i.e., the statistical method of how the standard is applied to real-world data) varies from pollutant to pollutant. For further information, 40 CFR Part 50 includes the relevant form for each federal standard.

Source: California Air Resources Board and U.S. EPA, 1999.

federal Clean Air Act requirements to attain and maintain the federal standards. Along with the BAAQMD, the Metropolitan Transportation Commission and the Association of Bay Area Governments contribute to the SIP revision process. The State ozone and PM_{10} standards are exceeded in the Bay Area region. Because of the ozone violations, the BAAQMD is required to prepare a Clean Air Plan to attain the State standard. Maintenance of the ozone standard is required to be addressed every three years in revisions of the plan. The *1997 Clean Air Plan* includes the specific control measures to reduce ground level ozone by reducing emissions of ozone precursors.[5] The Clean Air Plan for ozone is scheduled to undergo revision during 2000. No State plan is required to meet State PM_{10} standards. The East County Area Plan[6] includes air quality goals for stationary sources and land use and transportation policies that

facilitate air quality goals. The air quality related policies of the local plan are generally consistent with those of the BAAQMD's *Clean Air Plan*. The following policies would respond to the proposed project:

- Policy 275: The County shall require projects that generate high levels of air pollutants, such as manufacturing facilities, hazardous waste handling operations, and drive-through restaurants and banks, to incorporate air quality mitigations in their design.

- Policy 276: The County shall review proposed projects for their potential to generate hazardous air pollutants.

- Policy 277: The County shall only approve new air pollution point sources such as manufacturing and extracting facilities when they are located away from residential areas and sensitive receptors.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

According to the State CEQA Guidelines, project would have a significant air quality effect if it would: (1) conflict with applicable air quality plans, (2) violate any ambient air quality standard, or contribute substantially to an existing or projected air quality violation, (3) result in a cumulatively considerable net increase of any non-attainment pollutant, (4) expose sensitive receptors to substantial pollutant concentrations, or (5) permeate its vicinity with objectionable odors. In order to assess the project effects, the BAAQMD recommends consideration of the following significance criteria for project construction and operations:

- Construction-related emissions would be considered a significant impact unless the feasible control mitigation measures of the BAAQMD CEQA Guidelines are employed to minimize particulate emissions.

- For operational impacts, combined stationary and mobile source emissions of more than 80 pounds per day of ROG, NOx, or inhalable particulates (PM_{10}) would be considered significant.

- A project with substantial traffic contributing to CO concentrations above the State ambient air quality standard would be considered to have a significant impact. (State ambient air quality standards for CO are shown in Table 3.2.6-2.)

Methodology

The air quality analysis focuses on project impacts generated during construction activities, and by new stationary sources and motor vehicle sources that would occur as a result of operation of the Altamont WTP.

The BAAQMD has developed an analytical approach that obviates the need to quantitatively estimate fugitive dust and equipment exhaust emissions from construction activities. The BAAQMD includes equipment exhaust emissions of carbon monoxide and ozone precursors (ROG and NOx) in the emission inventory that is the basis for regional air quality planning and does not consider these emissions to impede attainment or maintenance of CO or ozone standards. For dust emissions, the BAAQMD recommends implementation of several feasible particulate matter control measures as project features to minimize the impacts. Applicable measures are listed in the Mitigation Measures portions of this Air Quality section of the EIR. For new stationary emission sources that would operate with the proposed plant, the potential emissions that may occur are estimated based on a proportion of the quantities that occur at the Patterson Pass WTP and Del Valle WTP. Emissions caused by project-related traffic are characterized by comparison to BAAQMD screening thresholds for small projects.

Impact 3.2.6-1

Short-term construction-related activities such as grading could result in fugitive dust and equipment exhaust emissions that would cause a nuisance. Unless reduced by implementation of feasible control measures, impacts caused by construction emissions would be potentially significant. Grading would be required to develop each of the sites. (PS)

Construction of the proposed Altamont WTP would involve activities that would cause air quality to be affected throughout the construction and site development period. Although the construction activities that would occur during development of each site would need to be responsive of site-specific conditions, preparation of each site would include grading, excavation and backfilling, installation of stormwater and water utilities, and treatment process pipes. Because each site is undeveloped, no demolition activities would occur. No construction schedule, sequencing, or phasing has been established, but it is expected that partial capacity of the water treatment plant and related conveyance facilities would be developed in 2006. Remaining capacity could be built out before 2016. The air quality impacts associated with construction activities would be considered to be short term, because they would discontinue after construction is complete.

Operation of heavy construction equipment could create fugitive (i.e., airborne) dust and emit ROG, NO_x, CO, SO_2, and particulate matter as a result of diesel fuel combustion. The primary pollutant of concern in fugitive dust would be PM_{10}. Throughout the construction period, these emissions would occur at rates varying widely depending on the specific activity or combination of activities in progress at any given time. Without additional reduction measures, these emissions could cause a potentially significant air quality impact.

To reduce emissions of fugitive dust and particulate matter, the BAAQMD has identified a set of feasible PM_{10} control measures for construction activities.[7] Because the construction activities related to the proposed project would involve disturbing land areas greater than 4 acres, as defined for the purposes of the California Environmental Quality Act, the BAAQMD's Enhanced Control Measures would be applicable to the proposed project, and the BAAQMD's Optional Control Measures also would be applicable to the proposed project because of the proximity of existing residences to each of the sites. Implementing of the following mitigation measure, as specified by the BAAQMD CEQA Guidelines and recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.6-1

To reduce fugitive dust and equipment exhaust, Zone 7 and its contractor should implement the following control measures based on the BAAQMD guidelines:

- Cover all trucks hauling excavation spoils and construction debris from the site;
- Water all exposed or disturbed soil surfaces at least twice daily;
- Temporarily pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved parking areas and staging areas;
- Sweep daily (with water sweepers) all paved parking areas and staging areas;
- Provide daily clean-up of mud and dirt carried onto paved streets from the site;
- Install wheel washers for all trucks, or wash the tires or tracks of trucks and equipment leaving the site;
- Install wind breaks, or plant trees/vegetative wind breaks at windward sides of construction areas;
- Suspend dust-producing activities during periods when instantaneous gusts exceed 25 mph if dust control measures are unable to avoid visible dust plumes;
- Limit the area subject to excavation, grading and other construction activity at any one time;

- Water with ½ gallon/yd^2 twice daily or cover stockpiles of debris, soil, sand, or other materials that can be blown by the wind;
- Apply soil stabilizers to previously-graded portions of the site inactive for more than ten days, or cover or seed these areas;
- Limit traffic speeds on unpaved areas to 15 miles per hour;
- Replant vegetation in disturbed areas as quickly as possible.

Mitigates:	Impact 3.2.6-1 (I)
Implementation:	Condition of Development Approval
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.6-2

Regional air emissions caused by project operation would not exceed the BAAQMD's significance thresholds of 80 pounds per day for ROG, NOx, and PM_{10} emissions. (I)

Project operation could cause emissions from small stationary sources, including but not limited to, ozone contactors, sludge drying beds, bench-testing, emergency power generators, and from motor vehicle trips of future treatment material shipments and project employees.

Stationary Source Emissions. The proposed project would include minor stationary sources such as vents from bench-testing and the water treatment plant's process units (e.g., ozone contactors and water reservoir vents). Organic material removed during clarification and sludge drying would not be likely to decompose prior to haul-out and would not be likely to cause substantial emissions of ROG. Ozone contactors would be enclosed and equipped with ozone gas destructors. Therefore, they would not release ozone to the atmosphere. Other activities that could cause emissions would be minor use of solvents for clean-up, and use and testing of diesel-powered standby generators during power outages and for fail-safe operation of the water treatment plant. Stationary sources that would be included with the Altamont WTP would be regulated through the BAAQMD's new source review permitting system. Installation of best available control technology and obtaining an Authority to Construct and a Permit to Operate from the BAAQMD may be required for some sources prior to commencement of construction. Compliance with the permitting process would ensure that stationary source emissions were controlled to the extent feasible.

The project would result in nominal emissions from the use of electricity and diesel oil at the water treatment plant. Pumping systems and conveyance systems would be electrically powered where not gravity fed. For administrative and operations building heating systems and for plant heating, emissions would be produced either directly at the site with the burning of diesel oil, or indirectly through increased electricity usage. These stationary source emissions would probably be exempt from the BAAQMD's permitting system and would not be considered significant.

Motor Vehicle Emissions. Traffic generated by the Altamont WTP is estimated to result in about seven new truck trips per month for chemical deliveries, two new truck trips per week for sludge hauling, and ten new vehicle trips per day for employees of the plant. The BAAQMD recommends detailed analysis of vehicle emissions for projects that cause more than 2,000 new vehicle trips per day. Because project traffic would be well below this threshold, no significant vehicular emissions would occur.

Because project operation would result in new stationary and mobile source emissions that do not exceed the BAAQMD's significance thresholds for ROG and NO_x of 80 lb/day, the air quality impact of regional emissions would be insignificant.

Mitigation Measure 3.2.6-2

None required. (I)

Impact 3.2.6-3

The proposed project would not expose the public to toxic air contaminants (TAC) or objectionable odors, because only minor new stationary sources or TAC- or odor-emitting activities are proposed. (I)

Trace quantities of toxic air contaminants (TAC) could occur with chemical storage and feed facilities and diesel fuel burning that would occur at the plant. Although ozone is not technically a TAC, because it is an irritant, ozone contactors will incorporate ozone gas destructors for preventing its release. Potential accidental emissions of chlorine stored at the plant are addressed in Section 3.2.5, Hazardous Materials and Public Safety. To minimize safety hazards, the Altamont WTP probably would use sodium hypochlorite in lieu of chlorine.

Additionally, toxic air contaminants are known to be emitted during operation of motor vehicles. However, no method exists for evaluating the potential effects of toxics emitted by motor vehicles, and no standard emission factors are available. Because of the low number of trips involved, the effects of the emissions from vehicle trips are not expected to be substantial.

None of the activities associated with the proposed project would have the potential to expose nearby receptors to objectionable odors. Substantial odor emissions would not be associated with sludge drying. Based on operating experience at the Patterson Pass WTP and Del Valle WTP, any potential odor emissions are expected to be minor, and would not be expected to create a nuisance. Therefore, air quality impacts caused by emissions of toxic air contaminants or odors would be less than significant.

Mitigation Measure 3.2.6-3

None required. (I)

Impact 3.2.6-4

The localized carbon monoxide concentrations caused by project traffic would not have the potential to cause localized violations of ambient air quality standards. (I)

Because all vehicular emissions would be well below the BAAQMD screening thresholds as discussed in Impact 3.2.6-2, no further analysis of localized carbon monoxide concentrations is required and the project would have a less-than-significant impact related to localized concentrations of CO.

Mitigation Measure 3.2.6-4

None required. (I)

Impact 3.2.6-5

Because the proposed project would not significantly increase contributions to regional air emissions and the project would not conflict with applicable region-wide air quality plans, the project's effects would not be cumulatively considerable, and, therefore, would not be significant. (I)

The San Francisco Bay Area Air Basin is a nonattainment area for ozone. Ozone is created region-wide by atmospheric chemical reactions between reactive organic gases (ROG) and

oxides of nitrogen (NO_x), in the presence of ultraviolet sunlight in warm temperatures. Therefore, all regional emissions of ROG and NOx contribute to cumulative regional increases in ozone levels. The BAAQMD's planning efforts aim to reduce ozone levels while allowing growth to occur, and the BAAQMD *CEQA Guidelines* establish the criteria for identifying significant contributions to cumulative air quality impacts, as noted above under Standards of Significance.

As shown above, the project individually would not be expected to have any significant air quality impacts. The project would not conflict with relevant objectives of the Alameda County General Plan. Based on this information, the project effects would not be cumulatively considerable, and no further analysis of cumulative impacts is necessary.

Mitigation Measure 3.2.6-5

None required. (I)

NOTES - Air Quality

1. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Revised December 1999, Appendix D.

2. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Revised December 1999, Appendix D, pp. D-11 to D-12.

3. California Air Resources Board, Ozone and Particulate Matter Data Summary (1995-1998). Ambient Air Quality Data CD-ROM, December 1999.

4. National Ambient Air Quality Standards have been established for criteria pollutants, named for the "criteria" documents that justified their regulation.

5. BAAQMD, 1997 Clean Air Plan, and Triennial Assessment, adopted by the Board of Directors, December 17, 1997.

6. East County Area Plan, Alameda County General Plan, Alameda County Planning Department, adopted May, 1994.

7. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, revised December 1999, Table 2, Feasible Control Measures for Construction Emissions of PM_{10}, p. 14.

3.2.7 NOISE

Introduction

Environmental noise typically is measured in terms of the A-weighted decibel scale (dBA). This is a logarithmic scale that approximates the sensitivity of the human ear to different pitches. The following rating scales, used to quantify the effects of community noise on people, consider the total acoustical energy of the noise, as well as the time of day when the noise occurs:[1]

- L_{eq}, the equivalent energy noise level, is the average acoustic energy of noise for a stated period of time, typically one hour, $L_{eq}(h)$.
- L_{dn}, the day-night average noise level, is a 24-hour average L_{eq} with a 10 dBA "penalty" added to noise occurring during the hours of 10:00 p.m. to 7:00 a.m. to account for the greater nighttime sensitivity of people.
- L_n, where n is between zero and 100. For example, the L_{25} represents the noise level where 25 percent of the time the noise levels are higher than this value, and 75 percent of the time noise levels are lower.

Noise environments and consequences of human activities usually are well represented by median noise levels during the day and night, or over a 24-hour period. Environmental noise levels generally are considered low when the L_{dn} is below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA.[2]

A difference of 3 dBA L_{dn} is a barely perceptible increase to most people, and a difference of 10 decibels would be perceived as a doubling of loudness. Distance, weather, and reflecting or shielding each help intensify or reduce noise levels at any given location. A commonly used rule of thumb for sources of noise that are fixed or stationary is that for every doubling of distance from the source, the noise level is reduced by about 6 decibels. For traffic noise, about a 3 decibel reduction occurs with each doubling of distance. Noise levels also may be reduced by intervening structures: generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 decibels. A doubling of source intensity (for example, operating two similar pieces of equipment) causes an increase in noise levels of approximately 3 decibels.[3]

SETTING

Regional Conditions

Each of the potential project sites for the Altamont WTP is located away from most of the urban noise sources of Livermore. The land uses surrounding the sites are primarily open space, light agricultural, and roads. Noise in the hills is from motor vehicle traffic near the roads and from the operating wind farms. The wind turbines cause distinctive, whining sounds when operating in high winds. These sounds, and noise from occasional maintenance of the wind turbines, add to the background noise levels away from the roads.

Residential uses are located near each of the sites. One residence is located adjacent to Laughlin Road Site #3, and about twelve residences are adjacent to Dyer Road Site #1, across Dyer Road. There are no airports or airfields within 2 miles of any of the sites.

Site-Specific Conditions

The wind farms and traffic on Dyer Road and Laughlin Road would be the primary sources of existing noise, and noise traveling up from I-580 would affect conditions along Altamont Pass Road. Based on qualitative reference data for quiet suburban areas, the existing environment at each site is expected to be between 50 and 55 dBA L_{dn}.[4]

Relevant Policies and Regulations

General Plan Guidelines

The State of California Office of Planning and Research publishes the *General Plan Guidelines* for use by communities in preparing comprehensive general plans.[5] The *General Plan Guidelines* present land use compatibility guidelines for community noise environments. The most sensitive land use in the vicinity of the potential project sites would be the nearby existing residential uses. According to the guidelines, a noise environment as loud as 60 dBA L_{dn} would be "normally acceptable" for single-family residential uses. This is the maximum noise level that would be acceptable for the areas of existing housing that are near the potential project sites.

Alameda County

The East County Area Plan[6] includes noise control goals that encourage preservation of the relatively quiet environment of the project area. The following policies relate to the proposed water treatment plant project:

- Policy 265: The County shall endeavor to maintain acceptable noise levels throughout East County.

- Policy 267: The County shall require noise studies as part of development review for projects located in areas adjacent to existing residential or other sensitive land uses. Where noise studies show that noise levels in areas of existing housing will exceed "normally acceptable" standards, major development projects shall contribute their prorated share to the cost of noise mitigation measures (such as sound walls, noise barriers, earthen berms, or buffer areas).

Nuisance noise and other excessive noise in quiet areas is regulated in the Alameda County General Ordinance. Section 6.60.040 of the Noise chapter in the General Ordinance specifies exterior noise levels that are allowable at residences near sources of noise. The County's noise level standards (Table 6.60.040A of the General Ordinance, Table 3.2.7-1 below) must be achieved by all sources of noise in the unincorporated areas of the county that affect nearby residential uses.

In order to reduce the potential impacts associated with noise from construction activities, the Alameda County General Ordinance restricts noise from construction work to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. on weekends.

Section 6.60.070 of the General Ordinance allows construction activities to exceed these noise standards, provided that the activities occur between 7:00 a.m. and 7:00 p.m. (Monday through Friday) or between 8:00 a.m. and 5:00 p.m. (Saturday and Sunday). Construction occurring outside these hours can be allowed by a variance issued by the Director of the County Environmental Health Services Department, provided that the equipment is maintained in a manner that eliminates unnecessary noise.

TABLE 3.2.7-1
EXTERIOR NOISE LEVEL STANDARDS FOR RECEIVING RESIDENTIAL LAND USES

Cumulative Number of Minutes in Any One-Hour Time Period	Daytime Standard (dBA) (7 a.m. to 10 p.m.)	Nighttime Standard (dBA) (10 p.m. to 7 a.m.)
30 - L_{50}	50	45
15 - L_{25}	55	50
5 - $L_{8.33}$	60	55
1 - $L_{1.67}$	65	60
0 - L_{max}	70	65

Source: Alameda County General Ordinances, Section 6.60.040, Table A.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The project may be deemed to have a significant noise impact if it would:

- result in noise levels above those specified in the Alameda County General Ordinance (Table 3.2.7-1), or if the existing noise levels are above those specified in the General Ordinance, cause noise levels to increase by more than 3 decibels (L_{dn}) above the ambient noise levels; or

- result in ambient noise levels at the nearby existing residential uses above those specified by the East County Area Plan as "normally acceptable" (i.e., above 60 L_{dn} at the nearby existing residential uses).

Methodology

A combination of existing literature and application of accepted noise prediction, and sound propagation algorithms was used to predict changes in ambient noise levels resulting from project-related activities. Specific noise sources evaluated in this section include activities associated with construction and stationary or fixed sources of noise that would be associated with operation of the plant. Existing and future traffic noise sources have been considered and factored into the analysis.

Impact 3.2.7-1

Short-term construction-related activities may intermittently generate noise levels above the standards in the Alameda County General Ordinance. (PS)

Earthwork, materials handling, stationary equipment, and construction-related vehicles would generate noise during all phases of construction of the Altamont WTP facilities. The construction activities would range from clearing, grading, backfilling and compaction, and excavation for construction of access driveways, installation of utilities and water treatment plant systems, and fabrication of buildings. Other major work includes construction of concrete structures.

Reference data illustrate that operation of typical construction equipment would result in noise levels between approximately 75 dBA and 100 dBA when measured 50 feet from the source, depending on the type of equipment and any noise controls used.[7] Heavy equipment, such as scrapers, tractors, loaders, haul trucks, vibratory front end loaders, backhoes, and concrete mixers, would be used to develop the selected Altamont WTP site. Trucks would travel to and from the selected site and within the site to move excavation and backfill material, equipment, and building materials. Smaller equipment, such as jack hammers, other pneumatic tools, compactors, portable and diesel engine generators, and power saws would be used almost continuously during the construction period. No pile driving or substantial sources of groundborne vibration would be associated with the proposed project.

Construction noise would create an intermittent impact on the noise environment that would be short term, occurring for the duration of construction. No formal construction schedule has been established for the Altamont WTP project, therefore, the exact nature and schedule of specific construction activities cannot be predicted. However, the construction of associated pipelines is expected to take about six moths, and the construction of the water treatment plant about two years. It is expected that the plant will be in service during Fiscal Year 2005/2006, and remaining capacity could be built out before 2016.

As discussed above, construction equipment noise levels within 50 feet of the source can be as loud as 100 dBA. These noise levels would diminish rapidly with distance, but still would have the potential to increase noise levels intermittently in the project vicinity above levels existing without the project. Residential uses are located near each of the potential water treatment plant sites, along the roads that access the sites, and near the sites with unobstructed lines of sight (e.g., downhill from visible activities at the site). At these locations, the noise impacts would be perceptible when compared to the existing noise environment and could, at

times, exceed the standards of the General Ordinance, if noise controls are not implemented. Without mitigation, construction noise impacts would be considered short term, but potentially significant.

Measures that would reduce construction noise impacts are specified below. Essentially, they follow the guidance provided by the Alameda County General Ordinance. Because Zone 7 is not under the County's jurisdiction, it responds to the Ordinance voluntarily. Implementation of the following mitigation measure, included as part of the proposed project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.7-1

To reduce construction noise effects, Zone 7 would require construction contractors to adhere to the noise abatement procedures and techniques listed below.

- To the extent possible, limit construction work to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. on Saturday.
- Muffle all equipment used on the site and maintain all equipment in good operating condition. Internal combustion engine-driven equipment should be fitted with intake and exhaust mufflers that are in good condition.
- Limit idling of powered construction equipment when not in use.
- When possible, shield noise-generating construction equipment from nearby existing residences (with, for example, a structure or possibly a truck) or locate equipment as far as possible from residences.
- Schedule noisy operations to minimize their duration at any given location.

Mitigates:	Impact 3.2.7-1 (I)
Implementation:	Write into plans and specifications of the project design.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.7-2

Operation of the water treatment plant may expose adjacent residents to increased noise levels. (PS)

The proposed Altamont WTP would include operations of treatment facilities, pumps, chemical feed systems, washwater equalization and clarification systems, sludge dewatering facilities, and storage systems. Pump systems and much of the other equipment located at the Altamont WTP would be housed in buildings that would provide sound attenuation; however, without specific performance criteria, the combined noise from operations at the Altamont WTP could exceed the standards of the Alameda County General Ordinance (thresholds shown in Table 3.2.7-1) at the water treatment plant property line and at adjacent existing residences. Without mitigation, this would be a potentially significant impact.

To ensure that future noise levels outside of the Altamont WTP property would be below the thresholds specified in the General Ordinance, the following procedures have been incorporated in the proposed project. Implementation of the following mitigation measure, recommended by the EIR consultant, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.7-2

After site selection and prior to final design, an acoustical study would be prepared to determine potential Altamont WTP noise levels at the adjacent or nearby residences. The Altamont WTP would be designed so noise generated by the water treatment plant would not cause noise levels at the receiving residences to exceed the standards of the Alameda County General Ordinance (Section 6.60.040, Exterior Noise Level Standards). Final design would include noise-reduction measures such as housing with insulation and/or muffling significant noise sources, installing sound walls at the facility, grading the site to provide earthen berms, or increasing setbacks from site boundaries.

Mitigates:	Impact 3.2.7-2 (I)
Implementation:	Write into the plans and specification for project design.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

Impact 3.2.7-3

Project-related operational traffic would increase ambient noise conditions along roads accessing the site, but not sufficiently to affect nearby existing residents adversely. (I)

Operation of the Altamont WTP at any of the potential sites would cause a corresponding increase in traffic noise along the roads accessing the site. Delivery and pick-up of materials and waste products associated with operation of the water treatment plant would cause approximately seven new truck trips per month for chemical delivery and an average of two new truck trips per week for sludge hauling (concentrated during the dry season). Altamont WTP employees would generate ten new vehicle trips per day.

Although the new traffic associated with the project could cause a perceptible change in daytime noise levels on Laughlin Road or Dyer Road, the resulting day-night noise levels along the roads is not expected to be greater than the levels considered acceptable" for residential use. This is because Laughlin Road and Dyer Road are not through roads: each is ended by private property line before it reaches another County road. Local traffic is minimal, being related to residential land uses (about ten trips per day per dwelling unit) or operation and maintenance of the existing wind farm and grazing uses. With project-related operational traffic, noise levels at the nearby existing residences are expected to remain less than 60 dBA L_{dn}. As such, the additional traffic would not increase noise to levels that would be incompatible with residential uses, and would, therefore, not create a significant noise impact.

Mitigation Measure 3.2.7-3

None required. (I)

Impact 3.2.7-4

Noise from project operation would not substantially contribute to cumulative noise levels near the project site. (I)

Noise caused by operation of the Altamont WTP and traffic noise induced by the operation would contribute to changes in the overall noise environment in the area of the selected site. As previously discussed, the project contributions would not individually be expected to cause substantial noise increases. No other projects are anticipated to cause substantial noise increases that would affect nearby existing residential land uses in the project area. Therefore,

project noise impacts would not be cumulatively considerable, and cumulative impacts would not be considered significant.

Mitigation Measure 3.2.7-4

None required. (I)

NOTES - Noise

1. Beranek and Ver, *Noise and Vibration Control Engineering, Principles and Applications*, Wiley-Interscience, 1992.

2. State of California, Governor's Office of Planning and Research, *General Plan Guidelines, Appendix A, Noise Element Guidelines*, 1998.

3. U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, 1995.

4. State of California, Office of Planning and Research, *General Plan Guidelines*, November 1998. Appendix A, *Guidelines for the Preparation and Content of the Noise Element of the General Plan*.

5. State of California, Office of Planning and Research, *General Plan Guidelines*, November 1998. Appendix A, *Guidelines for the Preparation and Content of the Noise Element of the General Plan*.

6. East County Area Plan, Alameda County General Plan, Alameda County Planning Department, adopted May 5, 1994.

7. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995. Chapter 12, Noise and Vibration During Construction.

4. GROWTH INDUCEMENT

4.1 INTRODUCTION

CEQA GUIDELINES

Under the California Environmental Quality Act, any project normally would be considered to have a significant effect on the environment if it would induce, or remove obstacles to, substantial growth or concentration of population. Section 15126.2(d) of the CEQA Guidelines stipulates that this growth must not be assumed to be necessarily beneficial, detrimental, or of little significance to the environment, but must be considered impartially.[1] Section 15126.2(d) of the CEQA *Guidelines* requires the following review of growth inducement in an EIR:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may further tax existing community service facilities, so consideration must be given to this impact. Also, discuss the characteristic of the projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.[2]

Essentially, CEQA requires a discussion of how a project could increase population, employment, or housing growth in surrounding areas and the impacts resulting from this growth. There are two basic types of population, housing, employment, and business growth: direct and indirect or secondary. Direct growth results from construction on the project site, which creates employment, service demands and, potentially, local growth in the vicinity of the project site. Secondary growth occurs throughout the community, but is stimulated by the proposed project's direct growth. Such growth is tied to increased investment and spending of employees, businesses, and residents. When CEQA refers to *induced growth*, CEQA means *all growth — direct, secondary, or otherwise*.

This section analyzes the potential for the Altamont WTP Project to result in either direct or secondary effects of growth. In summary, the proposed project would not result in significant direct increases in population or employment. Additionally, Zone 7 has analyzed and

disclosed potential secondary effects of growth associated with provision of water supply and treatment capacity to meet buildout demands under the adopted General Plans within its service area. The capacity provided by the Altamont WTP would not result in any secondary effects of growth beyond those previously disclosed in the Zone 7 Water Supply Planning Program EIR, which was certified and approved by the Zone 7 Board of Directors on July 21, 1999.[3] Further discussion of both direct and secondary effects of growth is provided in the remainder of this section. The discussion is for informational purposes and does not represent new impacts which were not addressed previously.

DIRECT EFFECTS

Construction of any project may directly, but temporarily, increase construction employment. Because of the relatively limited nature of the construction anticipated for the proposed Altamont WTP Project, it is expected that the demand for construction employment would be met within the existing and future labor market for construction in the Livermore-Amador Valley. Consequently, no influx of new employees or change in local development are anticipated.

SECONDARY EFFECTS

Project construction and the project's new employees would slightly increase the demand for a range of products and services such as roads, schools, power, etc. This secondary impact would not be significant in terms of the local economy because the construction period would be relatively short (6 months for pipelines, 2 years for the water treatment plant) and the number of new employees for the Altamont WTP would be very small (about half a dozen). Given current growth projections for more than 23,000 new residential units and more than 74,000 new jobs in the Livermore-Amador Valley by the year 2020, the direct effects of the Altamont WTP are insignificant.[4]

Secondary impacts would be associated with potential effects on the geographic distribution of growth within the Zone 7 service area. Specifically, the Altamont WTP sites under consideration are located with areas that are not currently served by a treated water system. If service connections within the geographic vicinity of the treatment plant were provided, this could result in growth within the plant vicinity that would not normally occur. However, the Altamont WTP is proposed as part of a three treatment plant configuration to meet regional treated water demands within the Zone 7 Service Area. Zone 7, as a water wholesaler, does not provide service connections to individual residences or residential development. Rather Zone 7 supplies treated water to its retailers, Livermore, Pleasanton, Dublin San Ramon

Services District (DSRSD), and California Water Services Company, who are responsible for its distribution through their local distribution systems. Consequently, development within the vicinity of the individual Altamont WTP sites under consideration would not result in growth within their immediate vicinity, because treated water service connections are not directly available from Zone 7. Any treated water service to these areas would be under the jurisdiction of the individual retailers, and would be subject to the limitations of their General Plans. Therefore, implementation of the Altamont WTP at any of the sites under consideration would not have a direct effect on the geographic or localized distribution of growth.

4.2 SUMMARY OF IMPACTS AND MITIGATION MEASURES PREVIOUSLY IDENTIFIED IN THE WATER SUPPLY PLANNING PROGRAM EIR

CONTEXT OF REGIONAL GROWTH DISCUSSION

This section of the Altamont WTP EIR discusses the context in which the proposed water treatment plant project would be implemented, and its relationship to planned growth within the Zone 7 service area. As part of the *Zone 7 Water Agency Water Supply Planning Program EIR* (SCH # 98041040, certified July 21, 1999)[5], Zone 7 identified an overall program of water supply acquisition, water conveyance, and water treatment plant facilities, that would be necessary to meet water demands associated with 2020 buildout under the adopted General Plans within its service area. This analysis included examination of the level of growth associated with buildout under the adopted General Plans, as well as identification of secondary effects of that growth. The conclusion of this analysis indicated that Zone 7's Water Supply Planning Program is designed to support a level of growth that is consistent with approved local General Plans, as well as regional growth management projections and policies. As noted in that analysis, Zone 7 does not have the jurisdiction or authority to regulate land use or make land use decisions. However, recognizing that implementation of the Water Supply Planning Program would remove a potential obstacle to growth, the Zone 7 Board of Directors adopted findings and a statement of overriding considerations for secondary effects of growth associated with buildout under the approved General Plans within the Zone 7 Service Area (Resolution 99-2056, adopted July 21, 1999). This analysis is presented in Chapter 7 (Growth Inducement Potential and Secondary Effects of Growth) of the *Zone 7 Water Agency Water Supply Planning Program EIR*. That chapter is incorporated here by reference, and relevant portions are extracted or summarized for the discussion presented in this section of the Altamont WTP EIR.

Chapter 6 of the Water Supply Planning Program EIR identified a new treatment capacity need

of between 35 and 50 million gallons per day (MGD) to meet projected water demands associated with buildout under the approved General Plans within the Zone 7 service area. This estimated treatment capacity need was based on the treatment capacity provided by Zone 7's existing Del Valle WTP (32 MGD) and Patterson Pass WTP (12 MGD), and the total treatment capacity that would be needed to meet buildout demands within the Zone 7 Service Area through the year 2020. The Altamont WTP was identified as a future project that will be required to meet this total treatment capacity.

Zone 7's total treatment plant capacity requirement was refined further as part of the Treated Water Facilities Master Plan.[6] Based on the treated water demand at buildout of approximately 69,000 acre-feet per year, and incorporating appropriate peaking factors, a total Zone 7 treatment capacity requirement of about 94 MGD was identified. Zone 7 currently is implementing improvement projects at Patterson Pass WTP (18 MGD) and Del Valle WTP (36 MGD), in conjunction with the Altamont WTP Project, to meet its treatment capacity requirement. As such, the Altamont WTP represents one component of Zone 7 Long Term Program to meet water demands within its service area. Implementation of the Altamont WTP would be phased, providing up to 24 MGD of capacity, with the ability to expand to as much as 42 MGD in the future. In the event that Altamont WTP were expanded in the future to 42 MGD, it would provide a total treatment capacity of about 96 MGD, which would be consistent with the treatment capacity goal identified in the Treated Water Facilities Master Plan. As demands occur over time, Zone 7 will continue to assess the most appropriate means for providing the capacity necessary to meet the buildout demands. Zone 7's treatment capacity goal has been identified based on the treated water demand at buildout identified in the Water Supply Planning Program EIR. Implementation of the Altamont WTP, either individually or in combination with other Zone 7 projects, would not result in additional growth, or secondary effects associated with growth, beyond those identified in the *Water Supply Planning Program EIR*.

Secondary effects of growth associated with Zone 7's mandate to secure, treat and distribute water in the Livermore-Amador Valley were identified in the *Water Supply Planning Program EIR*. For informational purposes, a summary of those secondary effects is presented below. This summary begins with the impact statement from the EIR. Table 4-1 then summarizes secondary impacts, potential mitigation programs available to address potential impacts, and agencies with jurisdiction over these programs. Table 4-2 identifies the statements of overriding considerations that have been identified by city and county agencies for impacts within the Zone 7 service area. As noted above, implementation of the Altamont WTP would not result in any additional impacts beyond those previously identified. The reader is referred to Chapter 7 the Water Supply Planning Program EIR for a full discussion of secondary effects

of growth. This document is available for review during normal business hours at the Zone 7 Administrative Office, located at 5997 Parkside Drive, Pleasanton.

Potential secondary impacts for major issue areas identified in the Water Supply Planning Program EIR are presented in Table 4-1. For the majority of these impacts, mitigation programs have been established by regulatory agencies to address these issues, and also are presented. The city and county governmental agencies that have adopted the land use plans and approved the development projects within the Zone 7 water service area adopted CEQA-required statements of overriding consideration that state their reasons for approving a plan or project that would have significant unavoidable impacts. The impacts most commonly identified as significant and unavoidable that are associated with the land use plans and development projects in the Valley include unacceptable traffic congestion, loss of open space and farmlands, alteration in the visual character of the Valley, cumulative loss of wildlife habitat, and increases in traffic noise and air emissions. To acknowledge these potential secondary effects, the following impact was identified in the Water Supply Planning Program EIR.

> The Zone 7 Near-Term Project and Long-Term Program would support a level of growth that is consistent with the amount planned and approved by the planning agencies within Zone 7's service area. No appreciable growth in population or employment would occur as a direct result of construction or operation of the project facilities. However, the growth accommodated by the project would result in secondary environmental effects. Some of these effects of growth are significant and unavoidable; others are significant, but can be mitigated. Significant, unavoidable impacts could occur as a result of planned growth in the following areas: traffic and traffic congestion, air pollution, loss of agricultural land and open space, loss of wildlife habitat, alteration of the Valley's visual character, grading and permanent changes in topography, increased traffic noise, increased demand for solid waste disposal capacity, seismic hazards, impacts to wildlife habitat, growth pressures for land conversion, lack of wastewater disposal capacity, cumulative demand for schools and parks, increased flooding potential, increased urban runoff pollutants, and increased energy demand. This impact is considered Significant and Unavoidable.[7]

The city and county governmental agencies that have adopted the land use plans and approved the development projects within the Zone 7 water service area adopted CEQA-required statements of overriding consideration that state their reasons for approving a plan or project that would have significant unavoidable impacts. These jurisdictions have identified key social, economic, and other considerations that are found to outweigh the potential secondary effects of proposed growth and development.[8] These considerations are listed below in

TABLE 4-1. SUMMARY OF SECONDARY EFFECTS OF GROWTH AND MITIGATION PROGRAMS - WATER SUPPLY PLANNING PROGRAM EIR

Issue Area	Secondary Effects	Agencies/Jurisdiction	Mitigation Programs
Land Use	Conversion of lands identified for development under adopted General Plans, estimated at approximately 22,000 acres	Livermore, Pleasanton, Dublin, Alameda County (Land Use Agencies)	General Plans and ECAP include policies and programs intended to prevent urban sprawl, establishing a framework for preservation of open space and agricultural lands.
Hydrology	Conversion of undeveloped lands, increasing peak flows	Zone 7 Water Agency Alameda County and Land Use Agencies	Special Drainage Area 7-1 Drainage Fee Program Flood Control Master Plan measures to be implemented on a project by project basis
Water Quality/Non-Point Source Pollution	Increases in Non-Point Source pollution associated with urban uses	Alameda County Land Use Agencies	Alameda County Stormwater Management Program. Measures to be applied on a project by project basis.
Salt Loading	Increased salt loading associated with use of imported water supplies	Zone 7 Water Agency and Water Retailers	Salt Management Program, currently under development by Zone 7 identifies offset and management strategies to control loading.
Wastewater Treatment and Conveyance Capacity	Increased wastewater generation associated with development	Livermore Amador Water Management Authority	LAVWMA Export Pipeline Facilities Project
Air Quality	Continued non-attainment for Ozone	Alameda County and Land Use Agencies Bay Area Air Quality Management District	Plans and Policies contained with General Plans Air Basin Plan
Biological Resources	Conversion of grasslands, cultivated lands and woodlands to urban uses	Alameda County and Land Use Agencies	ECAP Urban Growth Boundary ECAP Resource Management Area Designations (Policy 72)
Biological Resources	Loss of riparian and seasonal wetlands	USACOE 404 Permit Program CDFG 1601/03 Streambed Alteration Agreement Program	USACOE, implemented on a project by project basis CDFG, implemented on a project by project basis.
Biological Resources	Loss of individual special status species	Alameda County and Land Use Agencies	ECAP Urban Growth Boundary ECAP Resource Management Area Designations (Policy 72)
Traffic and Circulation	Increased traffic volumes and peak period congestion	Alameda County and Land Use Agencies Alameda County Congestion Management Authority Tri-Valley Transportation Council	Alameda County Capital Improvement Program (CIP) Alameda County Long-Range Transportation Plan Tri-Valley Transportation Plan

Table 4-2. It is important to note that Zone 7 does not have the jurisdiction or authority to

implement mitigation measures for many of the secondary effects of growth such as increases in demand for other public services or loss of open space and agricultural land. Recognizing that implementation of the Water Supply Planning Program would remove a potential obstacle to growth, the Zone 7 Board of Directors adopted findings and a statement of overriding considerations for secondary effects of growth associated with buildout under the approved General Plans within the Zone 7 Service Area (Resolution 99-2056, adopted July 21, 1999).

Other impacts commonly identified as significant, but mitigable, include the need for additional law enforcement officers and facilities, firefighters and facilities, schools, parks, and water service; loss of wildlife habitat; increased air pollution; increased potential for damage or injury from wildfires, earthquake, and landslides; permanent habitat loss; increase in traffic noise; and increased flood hazard and pollution from urban runoff. The cities and counties, not Zone 7, have primary land use jurisdiction and responsibility to regulate through the land use planning and development approval process.

TABLE 4-2 KEY OVERRIDING CONSIDERATIONS FOR SIGNIFICANT, UNAVOIDABLE IMPACTS OF PLANNED GROWTH AND DEVELOPMENT

- Accommodation of ABAG-projected growth[a]
- Provision for balanced jobs/housing balance[a,b,d]
- Furtherance of regional housing share objectives and provisions of affordable housing[a,b]
- Provision and maintenance of affordable housing: rental housing and attached housing near commercial and employment uses[e]
- Provision of housing near growth regional employment centers[b,d]
- Location of development where it can be efficiently served with public services and utilities[e]
- Job creation[b,e]
- Increase sales revenue[b]
- Enhancement of wine-producing image and creation of investment incentives and perpetuation of agricultural uses[e]
- Minimization of vehicle-miles traveled by providing housing near employment[c]
- Minimization of energy consumption and air pollution from automobile commuting
- Minimization of traffic congestion[c]
- Establishment of an urban growth boundary[a,e]
- Establishment of policies to preserve agricultural lands[a,e]
- Establishment of policies to preserve open space lands[d,e]
- Comprehensive resource management[a,b]
- Comprehensive open space/recreation planning, implementation, and management[a,b,d]

a Alameda County Board of Supervisors, 1994.
b City of Dublin City Council, 1993
c City of Pleasanton, 1996b.
d City of Livermore, October 1993b.
e City of Livermore, 1997d.

Source: Compiled by ESA for the Water Supply Planning Program EIR.

Zone 7 does not have the authority to make land use and development decisions. It does not approve growth, but rather seeks to provide adequate water supply and service capacity to respond to the planned growth approved by the cities within its service area. Zone 7 does have the legal responsibility to mitigate the impacts of growth on water service by providing adequate supply and service capacity. It does not have the authority or jurisdiction to implement mitigation measures necessary to address many of the identified significant, secondary effects of planned growth.

Authority to implement such measures lies with the land use/development approval agencies (Dublin, Pleasanton, Livermore, Alameda County and Contra Costa County), which enforce local, State, and federal regulations and impose mitigation requirements through the permit process. Other agencies with authority to require mitigation or with responsibility to implement measures to mitigate the effects of planned growth include regional and State agencies such as the Bay Area Air Quality Management District (BAAQMD), Regional Water Quality Control Board (RWQCB), California Department of Fish and Game (CDFG), Department of Health Services (DHS), California Department of Transportation (Caltrans), and federal agencies including the U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers.

NOTES - Growth Inducement

1. California Office of Planning and Research, *CEQA – California Environmental Quality Act — Statutes and Guidelines*, as amended October 26, 1998.

2. California Office of Planning and Research, *CEQA – California Environmental Quality Act — Statutes and Guidelines*, as amended October 26, 1998.

3. Zone 7, Alameda County Flood Control and Water Conservation District, *Zone 7 Water Agency, Water Supply Planning Program, Program EIR*, SCH # 98041040, certified July 21, 1999, pp. 7-1 through 7-120. Prepared by Environmental Science Associates.

4. Lamphier & Associates and SWA Group, North Livermore Specific Plan Draft EIR, April 2000, pp. 24-5 through 24-19.

5. Zone 7, Alameda County Flood Control and Water Conservation District, Zone 7 Water Agency, Water Supply Planning Program, Program EIR, SCH # 98041040, certified July 21, 1999, pp. 7-1 through 7-120. Prepared by Environmental Science Associates.

6. Camp Dresser McKee, *Treated Water Facilities Master Plan — Final Report,* January 2000, prepared Zone 7 Alameda County Flood Control and Water Conservation District.

7. Zone 7, Alameda County Flood Control and Water Conservation District, *Zone 7 Water Agency, Water Supply Planning Program, Program EIR*, SCH # 98041040, certified July 21, 1999, p. 7-28.

8. Zone 7, Alameda County Flood Control and Water Conservation District, *Zone 7 Water Agency, Water Supply Planning Program, Program EIR*, SCH # 98041040, certified July 21, 1999, pp. 7-36 through 7-87.

5. UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

In accordance with Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines, a section must be included in the EIR setting forth those significant environmental impacts which cannot be mitigated to a level of insignificance that would result from construction of the Altamont Water Treatment Plant project. There are no significant or potentially significant impacts of the Altamont WTP Project which cannot be so mitigated. However, there is one unavoidable significant impact on Biological Resources that is mitigable to an insignificant level identified for this project and is discussed below. All other potentially significant impacts identified for other subject areas examined in this EIR were determined to be mitigable to insignificant levels.

BIOLOGICAL RESOURCES

Impact 3.2.1-1

Construction of the Altamont WTP and associated infrastructure on any of the possible sites would remove grassland foraging habitat of the State and federally Endangered San Joaquin kit fox. (S)

The USFWS considers all proposed sites to be San Joaquin kit fox foraging areas because they are located on the western edge of the San Joaquin kit fox range. Dyer Road Site #1 was included in the biological analysis for Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion and was identified as mitigation acreage for loss of San Joaquin kit fox habitat associated with that project. The dedication of the site as mitigation acreage has been established as an Alameda County Condition of Approval for the Altamont Landfill project. Additionally, preliminary U.S. Fish and Wildlife Section 7 consultation identified this site as mitigation acreage. This site would be available only if appropriate alternate mitigation could be identified by Zone 7 and if agreements with Waste Management, Inc., Alameda County, and the U.S. Fish and Wildlife are secured. In order to secure the agreements, it is likely that Zone 7 would have to demonstrate to USFWS and Alameda County that other available water treatment plant sites are not feasible, including expansion at existing treatment plant sites. The following mitigation measure, included as part of the proposed project, would reduce this impact to an insignificant level.

Mitigation Measure 3.2.1-1

Loss of foraging habitat would be replaced by preservation of similar grassland habitat in the vicinity. The USFWS probably would require replacement of lost San Joaquin kit fox foraging habitat at a ratio of at least 3:1, or to be funded through in lieu fees, paid by Zone 7 to the USFWS to purchase land for foraging habitat.

Mitigates:	Impact 3.2.1-1 (I)
Implementation:	Zone 7 will reach a habitat replacement agreement with the USFWS sometime before the end of the WTP design phase.
Responsibility:	Zone 7 Capital Projects Group, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service
Monitoring:	A qualified wildlife biologist reporting to CDFG and/or USFWS

6. ALTERNATIVES TO THE PROPOSED PROJECT

The purpose of the discussion of alternatives in an EIR is to focus on site development options which could avoid or substantially lessen significant environmental effects of a project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly[1] (see Section 2, Project Description, for a discussion of project objectives). The range of alternatives is to include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.[2] Among the factors that may be taken into account when addressing the feasibility of alternatives for inclusion in an EIR are site suitability, economic viability, availability of infrastructure, general plan consistency, or other plans or regulatory limitations, including jurisdictional boundaries.[3]

CEQA Guidelines require that an EIR briefly describe the rationale for selecting the alternatives to be discussed and identify any alternatives that were considered but rejected or withdrawn as infeasible during the scoping process or the environmental analysis, and briefly explain the reasons underlying that determination.[4] The EIR should include sufficient information about each alternative to allow a meaningful evaluation, analysis and comparison with the project as proposed because project approvals could be conditioned on the findings of the alternatives analysis.

The analysis of alternatives is an important element of an EIR and is necessary to ensure that a reasonable range of options is examined, thus providing a complete understanding of the effects of full project implementation, partial project implementation, or no project. This section of the EIR describes the alternatives addressed by the proposed Altamont WTP project and that have been considered in the environmental review process.

The alternatives analysis presented in this EIR focuses on site selection for the proposed Altamont WTP project. Alternative conveyance routes have been reduced to one per site through the environmental examination of possible corridors (see below). Either of the treatment alternatives could work at any of the alternative sites. The spectrum of alternatives indicates that, of the numerous potential sites for the proposed Altamont WTP project, only three could feasibly attain the project objectives, given the economic context. Each of the three sites would meet that goal to some extent, but not all equally well. As required under CEQA, this section also discusses a No Project Alternative and an Environmentally Superior Alternative.

The No Project Alternative addresses the CEQA issues that would occur if the project were not constructed. An Environmentally Superior Alternative is required under CEQA, if the alternative with the least environmental impact is the No Project Alternative. In that case, at least one of the other alternatives must be designated as the Environmentally Superior Alternative.

6.1 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM PROJECT LEVEL ANALYSIS

The following discussion is a summary of information contained in the Treated Water Facilities Master Plan, prepared by Camp Dresser & McKee for Zone 7 of Alameda County Flood Control and Water Conservation District (Zone 7).[5] The Treated Facilities Master Plan included identification of Zone 7's long-term treatment capacity needs, and review of treatment capacity at Zone 7's existing water treatment plants. This analysis determined that expansion at Zone 7's existing water treatment plants to meet projected treatment capacity demands would not be feasible. Therefore, this type of alternative was not considered further. The Treated Facilities Master Plan identified and examined ten sites as potential locations for a new Altamont WTP, and were chosen based on three site selection criteria: (1) geographic area, (2) available site area, and (3) site topography. The ten recommended for further evaluation are shown in Figure 6-1 of this EIR. Sites were chosen to take advantage of elevation head and to minimize customer pumping, and were only considered in areas north of I-580 and west of the South Bay Aqueduct (SBA) to minimize the length of water conveyance pipelines. Potential sites were selected based on a minimum site size of 20 acres, and generally were limited to flatter areas of valleys and bluffs to minimize the necessary amount of earthwork at each site. Four sites were identified along Dyer Road. Three sites were identified along Laughlin Road, two along Vasco Road, and one along Altamont Pass Road.

The ten sites were then evaluated using screening criteria based on engineering and operations concerns, geotechnical concerns, and environmental concerns, as shown in Table 6-1. Engineering and operations screening criteria are related to reducing the amount of pumping and minimizing the overall construction costs for water conveyance and treatment. Factors considered included evaluation of the plant site, available area, proximity to the SBA and service area, and traffic volumes on public roads adjacent to potential sites. Geotechnical screening criteria are related to the features and conditions that could influence the construction, safety, and function of the Altamont WTP. The most important criteria in this category are potential seismic hazards and the presence of high groundwater. Environmental screening criteria are related to the potential influence of the construction and operation of the Altamont WTP on the existing environment surrounding the selected site. Primary

TABLE 6-1 ALTAMONT WTP SCREENING CRITERIA SUMMARY

Criteria	*Minor Issue*	*Major Issue*	*Fatal Flaw*
Engineering and Operations			
Elevation of plant sites	--	--	Less than 680 feet
Size of acreage available	Less than 30 acres	--	Less than 20 acres
Raw water booster pumping requirements	Booster pumping required at site	--	--
Treated water booster pumping requirements	Serves Springtown and Livermore Zone 1	Serves only Livermore Zone 1	--
Plant access requirements	--	--	Plant accessible only from high traffic volume roadway
Geotechnical			
Presence of fault traces	Site in AP zone but fault traces can be avoided	--	Site in AP zone and active fault traces cannot be avoided
Presence of groundwater	--	Groundwater potential to impact construction	
Environmental			
Kit fox habitat mitigation	Site is identified as mitigation for other project	--	--
Presence of wetlands	Possible avoidance of wetlands, minimal offsite mitigation required	Avoidance not possible, significant offsite mitigation required	--
Existing residential land use	Potential residential conflicts adjacent to site	Relocation of permanent residences or farms	--
Development along ridgelines	--	Development on ridgeline	--

Source: Camp Dresser & McKee, *Treated Water Facilities Master Plan,* February 2000.

environmental criteria are biological resources (such as special status animals and plants, and the presence of wetlands), existing land uses, and development along ridgelines.

Sites were evaluated according to whether the screening criteria were minor issues, major issues, or fatal flaws at each site. Table 6-2, Treatment Plant Site Characteristics, is a matrix developed by Camp Dresser & McKee to summarize the results of the screening evaluation. (Note that Dyer Road Site #5 has been added to the original matrix to complete the analysis of all sites.) A graphic presentation of the three levels of constraint was prepared, and is shown in Figure 6-2. Seven of the ten original sites were eliminated by the screening. The three sites remaining were listed in the Notice of Preparation dated February 25, 2000 (see Appendix A).

6.2 ALTERNATIVES ACCEPTED FOR PROJECT LEVEL ANALYSIS

LAUGHLIN ROAD SITE #3

This site meets Zone 7's needs with regard to site elevation and size, but is more constrained with regard to access. The site is 1500 feet from the closest public road and about 200 feet higher, thus necessitating a long, highly visible access road crossing steep terrain. The site is on a ridge line and at least partially visible from the proposed East Bay Regional Park District (EBRPD) trails and observation point on Brushy Peak. It would be possible to reduce the facility's visibility through building design and vegetative screening, but it is unlikely that the buildings could be lowered physically by recessing them into the ridge top, because bedrock is close to, or exposed, at the ground surface.

A substantial amount of energy would be needed to pump raw water up 200 feet from the conveyance line planned for Altamont Pass Road to the facility site for treatment. The addition of another 10,000 feet of raw water line and a similar amount of treated water line would increase the energy consumption even further. Some of this energy could be reclaimed through the use of gravity feed treated water lines. It is possible that some might be reclaimable through other energy recovery systems.

The site is known to be foraging habitat for the San Joaquin kit fox. A "land-for-land" swap or *in lieu* fee would be required by the California Department of Fish and Game (CDFG) to mitigate for the loss of habitat.

An overland conveyance for raw water was considered for this site. Consideration of that alternative route was discontinued when the environmental consequences of pipeline

Table 6-2. Treatment Plant Site Characteristics

	Dyer Road Sites					**Laughlin Road Sites**			**Vasco Road Sites**		**Altamont Pass**
	1	2	3	4	5	1	2	3	1	2	1
Elevation Range (feet)	780-820	740-820	740-760	760-820	800-860	600-640*	560-570	680-760	700-740	590-640*	780-800
Site size (acres)	20-30	45-55	20-25	45-55	20-25	20-30	40-50	45-55	30-40	20-30	20-25
Raw water pumping required	yes	yes	no	yes	yes	no	no	no	no	no	yes
Treated water pressure zones requiring booster pumping	Altamont	Altamont	Altamont, N. Livermore	Altamont	Altamont	Altamont, N. Livermore, Springtown	Altamont, N. Livermore, Springtown	Altamont, N. Livermore	Altamont, N. Livermore	Altamont, N. Livermore, Springtown	Altamont
Proximity to SBA and service subzones	good	good	good	outside immediate service area	good	good	good	good	outside immediate service area	good	good
Plant access road traffic volume	low	low	low	low	low	low	low	low	high	high	moderate
Presence of fault trace	no recognized hazard of surface faulting	no recognized hazard of surface faulting	no recognized hazard of surface faulting	no recognized hazard of surface faulting	No recognized hazard of surface faulting**	No recognized hazard of surface faulting	active fault traces on site	no recognized hazard of surface faulting	active fault traces on site	active fault traces on site	no recognized hazard of surface faulting**
Presence of groundwater	not significant	potential impacts to construction	potential impacts to construction	potential impacts to construction	not significant**	potential impacts to construction	potential impacts to construction	not significant	not significant	not significant	not significant**
San Joaquin kit fox habitat mitigation requirements	mit. site for Alt. Landfill, 3:1 mitigation	3:1 mitigation	3:1 mitigation	3:1 mitigation	3:1 mitigation**	3:1 mitigation	3:1 mitigation	3:1 mitigation	3:1 mitigation	3:1 mitigation	3:1 mitigation**
Wetlands mitigation requirements	two areas in sw corner	southern quarter of site	80 percent of site	one-third of site near dam and drainage	None observed on aerial photos**	60 percent of site	high potential for vernal pools	none identified	none identified	small area on site	none observed on aerial photos**
Existing land use	vacant, some adjacent residences	some residences	vacant, some adjacent residences	existing farm	Vacant, with adjacent residences**	some residences	vacant, some across street	vacant, some adjacent residences	vacant, with adjacent residence	some residences	vacant, with adjacent residences**
Development on ridgeline	no	no	no	no	no	no	no	yes	yes	no	yes
Eliminated during screening?	no	yes	yes	yes	N.A.***	yes	yes	no	yes	yes	no

Notes:

* Elevation lower than Patterson Pass Water Treatment Plant (680 feet).

** Information based on cursory review of site conditions. Additional analysis can be performed in future studies.

*** Not included in original screening.

Source: Camp Dresser & McKee, *Treated Water Facilities Master Plan,* February 2000.

maintenance and the pumping costs were evaluated (the high point of the route would have been at least 500 feet above the elevation of the turnout from the main supply line). The route would pass through East Bay Regional Park land, and although the pipe would be buried, a maintained access road would be needed along the entire length of the pipeline. This would have visual impacts because it would be difficult to screen the entire length of the road from most vantage points in the Brushy Peak viewshed. Effects on wildlife and habitat that would also be difficult to mitigate because the road (and its traffic) would fragment the habitat on the south side of Brushy Peak.

DYER ROAD SITE #1

This site meets Zone 7's needs with regard to site elevation, size and access. The site shape is an elongated rectangle, and the ground surface is nearly level, allowing for more advantageous placement of the elements of the water treatment plant than on other potential sites. However, there are seasonal ponds on the north, east and south edges of the site which are required to be avoided during construction and operation of the facility. The site is adjacent to a public road and could share access with the State Division of Water Resources by using the existing access road. It is nearly level with the South Bay Aqueduct, and therefore nearly level with the proposed water supply line at this point, thus resulting in less energy consumption than that associated with Laughlin Road Site #3.

The site is in a valley and only partially visible from the proposed trails and observation point on Brushy Peak. The site is visible from residences across Dyer Road. It would be possible to reduce the facility's visibility through building design and vegetative screening, and the buildings could be lowered slightly by recessing them into the valley floor, where there are many feet of unconsolidated sediments that are more easily excavated than bedrock.

The site is known to be foraging habitat for the San Joaquin kit fox. A "land-for-land" swap or *in lieu* fee would be required by CDFG to mitigate for the loss of habitat. There is potential habitat for other species of concern (vernal pool fairy shrimp, vernal pool tadpole shrimp, tri-colored blackbirds, and California red-legged frog). Avoidance of the seasonal ponds is the primary mitigation required by CDFG and the U.S. Fish and Wildlife Service.

6.3 ALTERNATIVES ADDED OR ELIMINATED AFTER FEBRUARY 25, 2000 RELEASE OF NOTICE OF PREPARATION

ALTAMONT PASS ROAD SITE #1

This site was also accepted for project level analysis, but was eliminated from further consideration after learning on August 10, 2000 that the land parcel encompassing this site had been purchased by EBRPD.

This site meets Zone 7's needs with regard to site elevation and size, but is slightly constrained with regard to shape and access. The site is narrow through the central area and the ground surface is rolling. The site is 3500 feet from the closest public road and about 300 feet higher, and would necessitate a long, highly visible access road crossing steep terrain.

The site is on a ridge line, in two scenic corridors, and at least partially visible from the proposed trails and observation point on Brushy Peak. It would be possible to reduce the facility's visibility through building design and vegetative screening. It is unlikely that the buildings could be lowered physically by recessing them into the ridge top, because bedrock is very close to the ground surface.

A substantial amount of energy would be needed to pump raw water up 200 feet from the conveyance line planned for Altamont Pass Road to the facility site for treatment. Some of this energy could be reclaimed through the use of gravity feed treated water lines. It is possible that some might be reclaimable through other energy recovery systems, but the amount is unknown.

The site is known to be foraging habitat for the San Joaquin kit fox. A "land-for-land" swap or *in lieu* fee would be required by CDFG to mitigate for the loss of habitat.

DYER ROAD SITE #5

This site was added on May 16, 2000 (about two months after the public scoping meeting) when Zone 7 and the property owner determined that a portion of the parcel on which the site is located could be made available for the proposed water treatment plant without removing the existing residence.

This site meets Zone 7's needs with regard to site elevation, size and access. The site shape is roughly L-shaped, and the ground surface slopes gently, allowing for an advantageous placement of the elements of the water treatment plant. The site is adjacent to a public road

and could share access with the wind farms by using the existing access road. It is about 25 feet higher than the South Bay Aqueduct, and therefore about 25 feet higher than the proposed water supply line at this point, thus reducing the energy consumption issues associated with Laughlin Road Site #3.

The site is on a valley wall and only partially visible from the proposed trails and observation point on Brushy Peak. The site is visible from some of the residences along Dyer Road. As previously discussed, it would be possible to reduce the facility's visibility through building design and vegetative screening. It is possible that the buildings could be lowered by recessing them into the valley wall, where there are several feet of unconsolidated sediments over the bedrock. These sediments are more easily excavated than bedrock.

The site is known to be foraging habitat for the San Joaquin kit fox. A "land-for-land" swap or *in lieu* fee would be required by CDFG to mitigate for the loss of habitat.

6.4 NO PROJECT ALTERNATIVE

Under the No Project alternative, none of the proposed alternative sites would be selected for the Altamont WTP project. None of the environmental impacts identified for the any of the sites in the project as proposed would occur. This alternative would have the fewest direct environmental impacts on any of the proposed sites because no construction of a water treatment plant would occur. However, indirect impacts associated with growth in the Zone 7 service area could be substantial: as discussed in Chapter 4, *Growth Inducement*, water supply is one of the critical factors in growth management of Livermore-Amador Valley communities. Development of a water treatment plant on some site, other than those discussed in this EIR, would continue to be pursued by Zone 7, although it is uncertain that the process could be completed in time to provide the water needed by the communities under the current projections. Under that condition, water shortages could be expected within a few years, unless treated water was provided to the Zone 7 service area from some other source. Additionally, when another potential site is identified for a water treatment plant, environmental effects of that site would require analysis. It may be reasonably assumed that many, although not all, of those effects would be similar to the impacts addressed in this EIR because the same site size, elevation, conveyance, service, maintenance, and staffing needs would be inherent in the design.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Dyer Road Site #5 has the fewest environmental constraints. Although there is some mitigation available for each of the sites, and the mitigation is, in many cases, similar, this site

would need the least to make it acceptable to the responsible agencies. There are no vernal ponds on the site. There are no San Joaquin kit fox dens, although the site is used as foraging habitat by the fox. There are no owl burrows on the site, although burrowing owls probably hunt there. About 80 percent of the site has been surveyed for archaeological and cultural resources: although caves and artifacts are known to exist in the vicinity of Brushy Peak, none have been found on this site. It is relatively close to the water supply turnout area of the South Bay Aqueduct, although some pumping would be needed to lift raw water to the facility. The site is partially screened from the Brushy Peak observation point and from the residences along Dyer Road.

NOTES - Alternatives to the Proposed Project

1. State CEQA Guidelines, Section 15126.6 (b).
2. State CEQA Guidelines, Section 15126.6 (c).
3. State CEQA Guidelines, Section 15126.6 (f) (1).
4. State CEQA Guidelines, Section 15126.6 (c).
5. Camp Dresser and McKee, *Treated Water Facilities Master Plan,* February 2000.

7. IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD OCCUR FROM IMPLEMENTATION OF THE PROPOSED PROJECT

Construction of the proposed Altamont Water Treatment Plant Project would create changes in land use (conversion from agricultural to industrial use), visual character and physical conditions of the project site as defined in Sections 3.1.1, Land Use, 3.1.2, Visual Quality, and 3.2.2, Soils, Geology and Seismicity, of this EIR. These changes would be sufficiently long-termed to be considered irreversible.

Visual change on the project site and in the project area would be irreversible because of site grading, construction of a new access road (for Laughlin Road Site #3), and the construction of the water treatment plant. Another irreversible environmental change associated with the project would be increased traffic volumes on local roadways to operate and maintain the water treatment facilities. There would be temporarily increased levels of traffic, and of noise and air emissions from project-related construction and construction traffic, which would be short-term, lasting during the construction period. However, mitigation measures have been identified to mitigate all direct impacts to levels of insignificance (see Section 5 for a description of Unavoidable Significant Adverse Impacts). Project construction would involve the irretrievable commitment of existing and expanded infrastructure facilities needed to serve the Altamont WTP such as gas and electricity, but not necessarily in a wasteful manner.

As previously discussed in other environmental review documents pertaining to the Livermore area,[1,2] the project would support planned land development and population growth in the Livermore-Amador Valley. Irreversible environmental changes would occur because of that growth. Among these changes would be the alteration in the physical conditions (grading, construction), the conversion of pasture land to urban and suburban uses, the commitment of renewable and non-renewable energy resources, and material resources used for the construction and operation of homes and businesses in the Zone 7 service area.

~~NOTES - Irreversible~~ Environmental Changes

1. Environmental Science Associates, *Livermore-Amador Valley Water Management Agency Export Pipeline Facilities Project Draft Environmental Impact Report, Chapter 5, Growth-Inducement Potential and Secondary Effects of Growth,* SCH #97072090, January 26, 1998, Final EIR Certification Date June 25, 1998.

2. Lamphier & Associates and SWA Group, *North Livermore Specific Plan DEIR*, SCH #97102048, April 2000 (currently under separate environmental review).

8. CUMULATIVE IMPACT ASSESSMENT

Cumulative impacts identified in this EIR are discussed in the following narrative. "Cumulative impact" refers to two or more individual effects, which, when considered together, compound or increase the environmental impact under consideration or other related environmental impacts. The individual effects may be insignificant, but still have significance when considered with similar impacts of other projects. The cumulative impact from several projects is the change in environmental conditions which results from the incremental effects of one project when added to other related past, present and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, project effects taking place over a period of time.

The criteria used to determine significant cumulative long-term effects of the proposed project on environmental factors are identical to those defined for the project-specific impact analysis. CEQA requires an assessment of cumulative impacts when a project's incremental effects are cumulatively considerable. If mitigation measures can be implemented feasibly and would reduce a project's contribution to the cumulative impact such that the cumulative effect is the same with or without the project, then CEQA considers the project's contribution to be rendered less than cumulatively considerable and therefore would not have a significant cumulative impact.[1] An EIR may also find that a project's contribution to a significant cumulative impact is de minimus. This occurs if environmental conditions would be essentially the same with or without the project.

Cumulative impacts have been identified in eight technical sections of this EIR: Visual Quality, Traffic and Circulation, Biological Resources, Hydrology, Water Quality, Hazardous Materials and Public Safety, Air Quality, and Noise. The Altamont WTP Project would not have cumulative effects in the other technical areas because the nature of those impacts is restricted geographically such that they would not combine with similar effects of other projects.

The cumulative context in which this project is viewed includes the currently anticipated development in Zone 7's service area in the Livermore-Amador Valley. This comprises over 17,000 new residential units and as much as 23 million new square feet of industrial/commercial/office space in the City of Livermore alone, by the year 2020. In Pleasanton and Dublin, over 23,000 new residential units are expected to be developed in the same time frame.[2] The reader is referred to Section 4.0, Growth Inducement, for a summary of potential secondary effects of growth that may be associated with this development.

VISUAL QUALITY

Impact 8-1

Selection of Laughlin Road Site #3 would add the Altamont WTP to the ridgeline views of the Altamont Hills. The site would be open to view from the south (I-580), west (North Livermore), and north (Brushy Peak Regional Preserve and East Bay Regional Park District). The project would be seen as an addition of urban land uses to a visually sensitive area (East County Planning Area ridgelands), and an incremental shift of the urban/rural interface. (PS)

The location of the Altamont WTP is determined partly by its function within the system for providing water to part of the Livermore-Amador Valley, which may necessitate siting in the visually sensitive ridgelands to take advantage of the hydraulic gradient needed to deliver treated water throughout the Zone 7 Service Area. If Laughlin Road Site #3 were chosen, the prominence of the water treatment plant would be reduced through screening, surface texturing for buildings, and landscaping or berming, as discussed in Section 3.2.1, Visual Quality. It would remain an urban-related element on a ridgetop in a suburban viewshed, adjacent to the BFI landfill and staging area. The direct visual impacts on the immediate surroundings would be reduced through implementation of the mitigation measures in Section 3.1.2, Visual Quality. However, the incremental incursion of another non-rural land use onto a recognizable ridgeline in the East County Planning Area adjacent to regional parklands would remain a potentially significant impact. The following mitigation measure, recommended by the EIR consultant, would assist the concerned agencies to keep this type of impact to a low level of significance, and to reduce the specific impact of the use of this site to a less than significant level.

Mitigation Measure 8-1

Zone 7 would implement Mitigation Measure 3.1.2-1 in Section 3.1.2, Visual Quality, and would continue discussions with the East Bay Regional Park District, the Livermore Area Recreation and Parks District, the City of Livermore, and Alameda County to develop and implement appropriate measures to make the Altamont WTP more compatible with its surroundings.

Mitigates:	Impact 8-1 (I)
Implementation:	Include in project planning and design phases.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

TRAFFIC AND CIRCULATION

Direct impacts on traffic patterns caused by the Altamont WTP Project are discussed in Section 3.1.5, Traffic and Circulation, of this EIR. Potential impacts are limited to short-term traffic trips generated during treatment plant construction, and a limited amount of long-term traffic. Impacts associated with short-term construction traffic would be reduced to a less than significant level through the implementation of Measures identified in Section 3.1.5, which include scheduling of construction trips during off-peak hours. Long-term traffic would be limited to approximately ten delivery trips per month, 1 to 2 truck trips per week during the dry season for sludge removal, and 5 to 10 employee trips per day.

Traffic associated with buildout under the approved General Plans within the Livermore-Amador Valley would result in increased traffic within the Livermore-Amador Valley, and would exacerbate existing traffic conditions. These effects would be that peak period freeway and arterial travel would increase, and the morning and afternoon peak periods would spread. This impact is considered significant and unavoidable. However, with approximately 13 daily long term trips (assuming 10 employee trips and 3 delivery trips), the Altamont WTP's contribution to cumulative long-term traffic impacts within the Livermore Amador Valley is not cumulatively considerable. Therefore, cumulative impacts are considered insignificant.

BIOLOGICAL RESOURCES

Direct impacts to plants and animals caused by the Altamont WTP Project are discussed in Section 3.2.1, Biological Resources, of this EIR. Implementation of the Altamont WTP could affect or result in the potential loss of habitat of special status species. These include grassland foraging habitat for San Joaquin kit fox, nesting habitat for borrowing owls, and habitat for other sensitive bird species, including white tailed kite, California horned lark, and loggerhead shrike. The amount of acreage lost at any of the Altamont WTP sites would be about 20 acres. Additionally, although no adults, eggs or larvae were identified at any of the sites, potential habitat for California red-legged frog and California tiger salamander is present at Dyer #1 and Dyer #5. Section 3.2.1 identifies specific mitigation measures to confirm the absence of these special status species, avoid potential amphibian habitat areas onsite, and provide appropriate mitigation habitat as determined by a habitat replacement agreement between Zone 7 and USFWS.

Development projects under the approved General Plans within the Zone 7 service area would result in the loss of habitat for sensitive species within the Livermore-Amador Valley. This loss is considered significant and unavoidable. However, potential biological resource

impacts associated with the Altamont WTP would be limited to the loss of about 20 acres of land, some portion which, depending upon the site identified for implementation, provides potential habitat for the special status species identified above. Within the context of development under the approved General Plans, which includes the development of over 22,000 acres of open space to urban and suburban uses, this loss of this amount of acreage is not cumulatively considerable. Zone 7 has identified appropriate mitigation measures, including avoidance of potential habitat, and provision of mitigation habitat, to reduce its potential contribution to cumulative impacts associated with the loss of habitat. Each direct effects would be mitigated to a level of insignificance through mitigation measures established in Section 3.2.1. Because the project's direct biological effects would be fully mitigated, its direct contribution to cumulative effects, such as cumulative loss of habitat or cumulative loss of individual special status species, also would be reduced to a less than significant level.

HYDROLOGY

Impact 8.2

Construction of water treatment plant facilities, associated roadways, and paved parking areas on the selected site would result in an increase in impervious areas and higher levels of surface runoff. When combined with other contributing projects within the area, these changes could contribute incrementally to increased erosion and flooding in downstream drainage ways. (PS)

As previously discussed in Section 3.2.3, Hydrology, development of the Altamont WTP at any of the three proposed sites would contribute runoff flows to the Arroyo Las Positas and Alameda Creek drainages, both of which currently experience periodic flooding at specific locations downstream. Development within these watersheds, including the Altamont WTP, would contribute incrementally to regional flooding impacts. As noted in Section 3.2.3, the increase in runoff associated with development at any of the Altamont WTP sites would be a minor component ($<0.5\%$) of the overall peak flow rate within these drainages. Therefore, the project would not have a considerable contribution to cumulative drainage impacts. Zone 7 is responsible for flood control with the Livermore-Amador Valley, and implementation of downstream improvements, including Zone 7 sediment removal projects, improvements proposed as part of the North Livermore Specific Plan, and improvements identified as part of Zone 7's Flood Control Master Plan, currently in development, would ensure that the proposed project's contribution to cumulative drainage impacts would be less than significant.

Mitigation Measure 8-2

Implement Mitigation Measure 3.2.3-2 in Section 3.2.3, Hydrology. Additionally, Zone 7 would continue to develop and implement regional drainage infrastructure projects, including the Flood Control Master Plan, and projects funded under Special Drainage Area 7-1 Drainage Fee Program.

Mitigates:	Impact 8-2 (I)
Implementation:	Include in project planning and design phases.
Responsibility:	Zone 7 Water Agency Water Supply Engineering Section
Monitoring:	Zone 7 Water Agency Capital Projects Group

WATER QUALITY

As discussed previously in Section 3.2.3, Hydrology, of this EIR, the amount of stormwater runoff leaving any of the potential Altamont WTP sites would be insignificant as a direct impact, but potentially significant when considered cumulatively. Similarly, the load of pollutants in this runoff would contribute incrementally to the cumulative pollutant load in the watershed. When considered as part of the combined effects of known and foreseeable future development, the cumulative accumulation of non-point source pollutants in stormwater could contribute to the deterioration of water quality in streams or wetlands. The implementation of mitigation recommended by the EIR consultant in Section 3.2.4, Water Quality, of this EIR, to reduce the direct impacts of non-point source pollutants would effectively reduce this cumulative impact to an insignificant level.

HAZARDOUS MATERIALS AND PUBLIC SAFETY

As noted in Section 3.2.5, potential impacts associatd with Hazardous Materials do not typically combine with other projects in a cumulative sense, due to their localized nature. Transportation of hazardous materials and waste disposal would have the potential to contribute to cumulative effects. However, because of health and safety measures incorporated into the project, the Altamont WTP would contribute little to cumulative transportation hazards. Similarly, very little hazardous waste would be generated at the Altamont WTP, when compared to the volume generated throughout the region. Therefore, hazardous material impacts would not be cumulatively considerable, and cumulative impacts would not be considered significant.

AIR QUALITY

As noted in Section 3.2.6, the San Francisco Bay Area Air Basin is a nonattainment area for ozone. Ozone is created region-wide by atmospheric chemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NOx), in the presence of ultraviolet sunlight in warm temperatures. Therefore, all regional emissions of ROG and NOx contribute to regional increases in ozone levels. The BAAQMD's planning efforts aim to reduce ozone levels while allowing growth to occur, and the BAAQMD CEQA Guidelines establish criteria for identifying significant contributions to cumulative air quality impacts. Implementation of the Altamont WTP Project in conjunction with other development projects within the Livermore-Amador Valley, and the greater Bay Area, would contribute emissions of ROG and NOx. However, as noted in Section 3.2.6, the project would not be expected to have any direct significant air quality impacts. Consequently, its contribution to air quality impacts are not cumulatively considerable, and potential cumulative impacts to air quality are less than significant.

NOISE

As noted in Section 3.2.7, noise caused by operation of the Altamont WTP and traffic noise induced by the operation would contribute to changes in the overall noise environment in the area of the selected site. The project contributions would not individually be expected to cause substantial noise increases. No other projects are anticipated to cause substantial noise increases that would affect nearby existing residential land uses in the project area. Therefore, project noise impacts would not be cumulatively considerable, and cumulative impacts would not be considered significant.

NOTES - Cumulative Impact Assessment

1. Governor's Office of Planning and Research, *California Environmental Quality Act Statutes and Guidelines*, Section 15130(a)(1 through 3).

2. Lamphier & Associates and SWA Group, North Livermore Specific Plan Draft EIR, SCH # 97102048, prepared for the County of Alameda and the City of Livermore, April 2000, pp. 24-6 and 24-7.

9. REPORT PREPARATION

EIR PREPARERS

EIP Associates
601 Montgomery Street, Suite 500
San Francisco, California 94111
415/362.1500

Administration and Management

Bill Ziebron, Principal-in-Charge
George Burwasser, Project Manager
Sheila Ryan, Deputy Project Manager
Liz Haines, Editor
John Wood, Lead Word Processor Operator

Technical Analysis

Brewster Birdsall, MS, Senior Scientist (Air Quality)
George Burwasser, MS, Senior Geologist
Binu Chandy, MPlan, Associate Planner (Hazardous Materials)
Lee Ellis, MS, Botanist
Bill Johnson, MS, Senior Scientist (Hazardous Wastes)
Kirsten Lawrence, BA, Geographic Information Systems Specialist
Gina Messa, BFA, Environmental Planner (Cultural and Recreational Resources)
Kelly Moran, PhD, Water Quality Specialist
Lucas Paz, MS, Senior Scientist (Hydrology)
Sheila Ryan, MESM, Environmental Scientist (Soil and Water Resources)

SUBCONSULTANTS

Montgomery Watson, Americas
1340 Treat Boulevard, Suite 300
Walnut Creek, California 94596

Jim Borchardt, Vice President
Anne Braghetta, Project Manager
Karen Johnson, Principal

LEAD AGENCY AND PROJECT SPONSOR

Zone 7 of Alameda County Flood Control and Water Conservation District
5997 Parkside Drive
Pleasanton, California 94588
925/484.2600

Jack Fong, P.E., Project Manager
Dale Myers, General Manager

Ed Cummings, Assistant General Manager
Vincent Wong, Assistant General Manager
Dennis Gambs, Principal Engineer
John K. Koltz, Senior Engineer